A STUDY OF METHODOLOGY FOR ESTIMATING THE IMPACT OF TAXES ON KANSAS FARM OPERATORS

by

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INTRODUCTION

Taxation in agriculture, as well as other sectors of the economy, is a complex and controversial problem. A novice in the field of taxation might view Adam Smith's canons of taxation as a simple solution to revenue needs. These canons of taxation (equality, certainty, convenience, and economy) are much easier to reiterate than to apply in a highly developed society.

Taxes on agriculture as an industry and taxes on the agricultural or rural population are not synonymous.[1] A study of the tax burden of the "true" farm population, people actually living on farms, might prove more valuable than would a study of the tax burden falling on all the owners of productive agricultural assets, regardless of whether these people are living and working on the farm.

Impact and Incidence

Much discussion has centered on the impact and incidence of taxes. Impact, in taxation, can be defined as where the taxes first fall; that is, who pays the initial tax levy. Incidence is where the tax levy finally comes to rest through a process of shifting; that is, who ultimately bears the tax burden.

The real and most difficult problem is to determine taxes which come to rest on the groups studied, no matter where these taxes are first imposed. This is the basic problem to an analysis of equity and distributional aspects of taxation.[2] However, the problem of impact and incidence in taxation is

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[1] Walter W. Heller, "A Survey of Agricultural Taxation and Economic Development," Agricultural Taxation and Economic Development, p. 121.

[2] Loc. cit.

quite complicated. "A truly empirical analysis of burden-incidence is feasible only in rare circumstances."[1] It would be most difficult in the complex setting of developed countries.[2] Yet, as Haygood remarked about the analysis of the tax load of agriculture:

> The final work on shifting has not been written but there is general agreement on a number of points. For instance, a farmer who pays an individual net income tax is unable to pass it on, as his prices were determined before the tax was determined.[3]

The impact of the sales tax, in the short run, is upon the retailer and the incidence is upon the consumer.[4] In the long run, if demand for the taxed article declines, the burden of the tax may rest upon the producer unless he is free to shift to other lines of production.[5]

With property tax, the degree of reproducibility of the taxed object plays a large part in determining the incidence of taxation. Capitalization "is a mechanism whereby a tax causes a change in the price of the taxed good."[6] Groves defines capitalization as "the change in the value of the taxed object by an amount equal to the capitalized value of the tax."[7] Thus if the tax on land should decrease, the burden of the immediate landowner will be reduced and he can expect a greater price for his land if sold. To the contrary, if the tax

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[1] Richard A. Musgrave, and others, "Quantitative Studies on Effects of Agricultural Taxation," Agricultural Taxation and Economic Development, p. 52.

[2] Loc. cit.

[3] Tyler P. Haygood, "Analyzing the Tax Load of Agriculture," Journal of Farm Economics, p. 675.

[4] Loc. cit.

[5] Loc. cit.

[6] Harold M. Groves, Financing Government, p. 129.

[7] Ibid., p. 131.

on the land should increase, the burden to the immediate landowner will have increased and the expected price of the land, if sold, would be reduced. In any event, tax capitalization of the land has occurred and the immediate incidence of the land tax can be said to affect current owners. A tax on buildings will tend to be shifted because their supply is somewhat elastic.[1] Buildings are not produced with great rapidity so over a considerable period of time the supply of buildings may be largely inelastic with most of the tax on them being capitalized instead of being shifted.[2]

Many other problems merit concern. Cherry has noted the necessity of knowing the competitive factors involved (pure competition, monopoly, etc.) in attempting to determine the incidence of taxation.[3] Haygood,[4] as well as Musgrave,[5] emphasized the need to consider benefits received from public expenditures in determining the tax load of agriculture.

Haygood considered the "obvious" tax payments by farmers, such as those levied against income, property, and transactions, as the quantitative factors in the tax load.[6] Haygood remarked that additional factors such as shifting and incidence, which he called qualitative, needed to be determined.[7] But

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[1] Loc. cit.

[2] Ibid., p. 132.

[3] Robert G. Cherry, "Analyzing the Tax Load of Agriculture - Discussion," Journal of Farm Economics, p. 679.

[4] Haygood, op. cit., p. 676.

[5] Musgrave, op. cit., p. 51.

[6] Haygood, op. cit., p. 675.

[7] Loc. cit.

Cherry had this to say:

> On the score of quantitative concepts versus qualitative factors, there seems to be an advantage of expediency in favor of commencing work on an over-all measure with emphasis on the quantitative. Perhaps gradual perfection in methodology on a quantitative basis will give impetus to work in the qualitative aspects.[1]

The approach in this tax study is that of a quantitative nature.

Scope of Study

The material presented in this report is contributory to a regional Great Plains project on "Taxation." The three objectives of this regional project are: (1) to estimate amounts of taxes farmers and others pay, (2) to analyze the effects of the changing agricultural economy on taxation and the effect of taxes on the changing economy and, (3) to develop a model tax system for an area such as the Great Plains.

Material presented in this tax study is concerned with the first objective as outlined in the regional study. An attempt was made to estimate, by empirical research and analysis, the impact of the property, sales and income tax on sample groups of Kansas farm operators. These estimates were for the calendar year of 1958. Methodology is emphasized. This tax study deals with farm operators. The ultimate objective is the determination of the tax burden of Kansas farmers. Limiting the main part of the study to an analysis of the property tax, sales tax, and income tax does not infer that other taxes paid by farm operators are considered insignificant.

The study on 1958 property tax levies was limited to Clay, Cloud, Dickinson, Marion, Ottawa and Saline counties, all of which compose Type-of-Farming Area 6a. Marion county was selected as the county most representative of the six counties.

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[1] Loc. cit.

A sample of 94 farm operators was obtained at the Agricultural Stabilization and Conservation Office at Marion, Kansas. Tax assessments and tax levies were obtained at the Marion County Court House.

The sales tax study was made by use of 1958 Farm Management Association records and Association Home records. The area studied covered most of Central Kansas. The sample was limited to farm operators who maintained accounts for both farm and home expenditures. The total sample was 92 farm operators.

The income tax study was made by use of 1958 Farm Management Association records and anonymous 1958 State income tax returns. The information collected was for Central Kansas. The sample of Farm Management Association Accounts numbered 92. The sample of State income tax returns numbered 152.

PURPOSE

The first and major objective was to develop methodology for estimating three major taxes paid by farm operators. These three are property, sales, and income taxes. To the extent possible, variation in taxes among tenure classes is presented.

A second objective was to separate, whenever applicable, taxes levied on the farm operator on items of non-business or family use from taxes levied on items used in the farm business.

A third objective was to highlight differences in tax estimates which may result if populations or universes are not carefully defined.

The fourth objective was to estimate the absolute property, sales, and income taxes, of farm operators in the area studied. This would give an indication of the possibility of estimation of the absolute taxes of other areas if like procedures were applied there.

The fifth objective was to determine if an estimated tax applicable to the farm operator family, on a per member basis, was of the same magnitude as the per capita tax for the remaining population.

The purpose of this study was to develop methodology, through empirical research and analysis, that would ultimately contribute to a determination of the tax burden of the Kansas farm population. This study is only a part of the work which will need to be accomplished.

GENERAL METHODOLOGY

The initial problem was to select the universe to be used in this study. The original intention was to estimate taxes paid by Kansas farmers, but many people living in rural areas are not farmers and some farmers live in cities. Some of the assessed value of "farm land and improvements" does not fall upon farmers; what percentage does fall upon farmers is not known. The amount of taxes paid by farmers owning property in cities or the division of personal property assessments between farmers and non-farmers can only be estimated. Certain assumptions must be made and limitational factors are encountered in making such estimates.

Various methods can be used to estimate taxes falling on farm operators and other groups. One method is to take aggregate tax figures and attempt to apportion them to various groups. It would be necessary to develop some basis or criteria for allocation. Acceptable tax allocation formula is not now available. An allocation would be a highly arbitrary matter.

Another method would be to use a budgetary analysis. This approach may be used to show how increases in various taxes might create added burdens for particular groups of persons. For example, assume that 10 million dollars of additional state revenue is needed. Make a further assumption that this revenue

could be raised by the increase of either the sales tax, the property tax, or the State income tax. Then consider any of a certain number of business operations. For simplicity, select a farm operation. Determine the mill levy increase on this property that would be necessary to bring forth the desired increase in State revenue with the total assessed base remaining constant. Knowing the assessed value of the farm and the mill levy increase, the increase in the tax levy could be determined. This figure might be $50.

On the basis of present sales tax receipts, determine the percent increase in the sales tax that would be required to bring forth the desired revenue, assuming the expenditure on taxable items as remaining constant. The sales tax increase for the farm operation might be $45. For the income tax, determine the percent increase in the income tax that would be required to yield the additional revenue. Calculate this on the basis of taxable income remaining constant. Assume that the income tax increase for the farm operation would be $55. Then it would be possible to advise the farm operator in question, on the basis of the assumption previously made, to favor legislation that would increase the sales tax, but allow the property tax and income tax to remain constant.

Each farm operation is an individual case, and what is desirable for one farm operator in tax minimization may not be desirable for another operator. This would depend on the relative magnitude of the assessed value, taxable expenditures and level of taxable net income. Computing the effect of certain tax increases for a large number and variety of business operations would be a great task; however, the information might prove of more value than any absolute tax estimate of a particular group. This tax information, arrived at by budget analysis, would aid various groups to support tax legislation favorable to them. A study of the budget analysis approach for the Great Plains project on

"Taxation" is under study by the University of Nebraska and Montana State University.

The methods developed in this study on estimating the impact of certain taxes on Kansas farm operators are those of an empirical nature. The approach involves the collection and processing of data from particular areas, in an attempt to give an estimate of the absolute tax of a particular group. Estimates were made for particular farm operator groups in the State on property tax payments, sales tax payments, and income tax payments. Per capita tax payments for farm operator family members were made and compared with per capita tax payments for "other groups." These "per capita" tax figures are merely indicative of the situation which may exist in the areas studied. They may not be indicative of per capita taxes on a State-wide basis. Refinements, and similar studies, would need to be made before "per capita tax estimates" for either "other groups" or "members of farm operator families" should be accepted as valid. This reservation applies to other estimates as well as per capita estimates.

PROPERTY TAX

"In view of the widespread use of property taxation, it is remarkable that techniques have not been adopted to administer property tax efficiently, fairly, and impartially."[1]

Estimates of 1958 property tax levies were studied, not 1958 property taxes paid. Property taxes in Kansas are due in two installments, so that if

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[1] Louis Shere and others, Report on "Administrative and Legal Aspects of Different Types of Agricultural Taxes," Agricultural Taxation and Economic Development, p. 41.

taxes paid were considered, some arbitrary allocation of tax payments between the two years would be needed.

This part of the tax study was limited to Clay, Cloud, Dickinson, Marion, Ottawa, and Saline counties. All these counties are within Type-of-Farming Area 6a (Fig. 1). Determination of a representative county, the number and tenure of farm operators, the acreage size of farms, the average mill levy and the median rural assessed ratio were necessary antecedents before fulfillment of the five objectives of this study.

Selection of a Representative County

Using land use, type of farm, economic class, and size of farm, obtained from the 1954 Census of Agriculture, Marion county was selected as the most representative of the six counties in Type-of-Farming Area 6a. The method involved compared the county averages with the Type-of-Farming Area average for each variable. The county having the lowest absolute sum of all variables was the most representative county in the area. The procedure is expressed in the formula:

$$\sum \frac{|\text{County Average} - \text{Area Average}|}{\text{Area Average}}$$

Also influencing this decision was the addressograph system available for listing all farms in the Agricultural Stabilization and Conservation Service Office at Marion, Kansas. The addressograph system is not available in all counties.

Number and Tenure of Farm Operators

The procurement of a sample was facilitated by use of the addressograph system containing names of 1958 Marion County farm operators. After processing

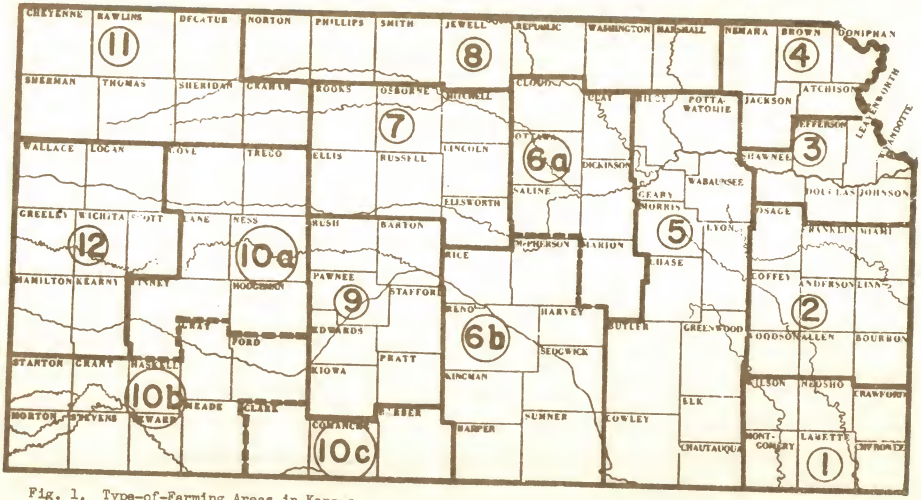

Fig. 1. Type-of-Farming Areas in Kansas.

the names through the addressograph machine to develop a list of the farm operators, the automatic counter indicated 2050. Possible duplication exists in the addressograph names. This possibility would aid in accounting for the discrepancy of 263 farm operators. Two hundred sixty-three was the difference between 2050 and 1787, which was the Marion county farm operator figure obtained by straight line projection of 1950 and 1954 Census of Agriculture data (Table 1).

Table 1. Projection of farm operators in Marion County, by tenure class, 1958.

Tenure	Year 1950	1954	1958
Owner	533	493	453
Part-owner	724	713	702
Tenant	808	720	632
Totals	2065	1926	1787

A similar projection was made for other counties considered in this study. These data along with Marion County are in Table 2.

Table 2. Projection of farm operators in Type-of-Farming Area 6a, by counties, 1958.

County	Tenure Owner	Part-owner	Tenant	Total
Clay	344	412	406	1162
Cloud	317	435	371	1123
Dickinson	570	597	564	1731
Marion	453	702	632	1787
Ottawa	276	448	198	922
Saline	378	391	375	1144

It was assumed that conditions influencing farm size and tenure status in the 1954-58 period were synonymous with those prevalent in the 1950-54 period. This assumption may be proven unrealistic upon the release of more recent Census

data or more complete investigation of the subject by other groups. Farm managers were not included in the total of farm operators since they were of such small number, totaling only 15 in Type-of-Farming Area 6a in the 1954 Census of Agriculture.

The Census of Agriculture defines a farm operator as:

> A person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter or sharecropper. The number of farm operators is considered the same as the number of farms.[1]

For the 1954 and 1950 Census of Agriculture, places of three or more acres were counted as farms if the annual value of agriculture products, exclusive of home garden products, amounted to $150 or more. In accordance with this definition, farm operators operating less than three acres were eliminated from the Marion County sample. Nothing could be done directly to refine the sample on the basis of annual value of agriculture products as these data were not available. However, realizing that this value criterion would eliminate additional farms, farm operators operating twelve acres or less were eliminated from the sample.

The Marion County sample included 100 farm operators. Six of these 100 farm operators were eliminated due to acreage requirements. Using this same percentage (6%) the number of Marion County farm operators determined by the addressograph count was reduced from 2050 to 1927. The number of duplicate addressograph farm operator names was believed to be small, an estimation of 50, so the number of farm operators was further reduced to 1877. This figure was used for Marion County instead of the 1958 projected figure of 1787 farm operators. Applying the 1954 Census of Agriculture tenure distribution percentages, Marion County had 488 owners, 694 part owners, and 695 tenants as farm

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[1] 1954 Census of Agriculture, Kansas Counties and State Economic Areas, p. XIII.

operators in 1958. As samples were not obtained for other counties, the only alternative was to rely on Census figures concerning number of farm operators and tenure distribution.

The null hypothesis that the sample produced the same tenure distribution as would hypothetically be produced under the Census of Agriculture distribution was tested by use of chi square.

$$x^2 = \sum \frac{(f-F)^2}{F}$$

Table 3. Tenure distribution, sample and hypothetical.

Tenure	Sample distribution		Hypothetical distribution	
Owners	f_1	30	F_1	24
Part owners	f_2	24	F_2	35
Tenants	f_3	40	F_3	35
Total		94		94

$x^2 = 1.5 + 3.46 + .71 = 5.67$ with two degrees of freedom. If the Type I error (which is rejecting the null hypothesis when it is true) was set at 0.05, then a chi square of less than 5.99 would be in the region of acceptance. The greatest deviation from the expected number occurred for the part owner class.

Acreage Size of Farms

Sample acreage size of farms in Marion County, for all tenure types, was smaller than 1958 acreage projections from Census data (Table 4).

Table 4. Acreage size of farms in Marion County, (sample acreage and projected acreage), by tenure, 1958.

Tenure	Average size of farm operation (in acres)	
	Marion County sample	1958 Projection
Owner	213	232
Part owner	346[1]	462[2]
Tenant	234	361

[1] 162 acres owned, 184 acres rented.

[2] 216 acres owned, 246 acres rented.

Similar projections for 1958 average size of farm operation were made for other counties in Type-of-Farming Area 6a (Table 5).

Table 5. Acreage size of farms in Type-of-Farming Area 6a, by counties and tenure, 1958.

County	Owner	Part owner	Tenant
Clay	243	413	359
Cloud	215	490	364
Dickinson	198	453	317
Marion	232	462	361
Ottawa	192	613	373
Saline	217	686	454

If the sample acreage data were not representative, they would lead to an underestimation of the tax assessment and tax levy per farm operator. However, statisticians at this station place greater reliance on sample figures than projected figures. If there was substantial reason for believing that projected figures were more accurate, sample average tax levies could be increased to compensate for acreage differences and personal property differences. Only projected figures were available for the other counties. These figures will be used later in determining the absolute tax levy for Type-of-Farming Area 6a.

Mill Levy and Percent Assessed Value

Marion County tax levies could be used to estimate the property taxes for all of Area 6a if, (1) the average mill levy in all the other counties was equal to the Marion County average mill levy, and (2) the assessed value of property in all of the other counties was equal to the assessed value of the exact type of property in Marion County. To determine the average mill levy of each county on rural property, the tax levy on "farm lands and improvements" was divided by the assessed value of "farm lands and improvements." The average mill levy for the six counties ranged from 39 mills to 43 mills (Table 6). A 1958 "Real Estate Assessment Ratio Study" for Kansas gave a rural median real estate assessment ratio calculated from sales of rural property for each county. These ratios were determined by dividing the total assessed value of lands and improvements by the determined purchase price (same as the sale price).[1] The range of these median rural assessment ratios was from 25 percent to 39 percent (Table 6). Extreme variation existed in these rural assessment ratios, sales may not have been representative of farm operator property, and the number of sales were fairly small. The number of rural sales from which these medians were derived totaled 211 for Type-of-Farming Area 6a.

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[1] Real Estate Assessment Ratio Study, Calendar Year 1958, p. 3.

Table 6. Median assessment ratios, average mill levies and the product of the rural assessment ratio times the average mill levy, by counties, 1958.

County	Median Assessment Ratios			Average mill levy	Rural median times average mill levy
	Average	Rural	Urban		
Clay	29	32	23	40	1280
Cloud	32	38	23	43	1634
Dickinson	33	39	25	40	1560
Marion	34	38	24	40	1520
Ottawa	30	30	35	42	1260
Saline	22	25	21	39	975

The figure obtained when multiplying the rural median by the average mill levy for Marion County was not equal to the product of each of the other five counties. Because of variation in assessment ratios and mill levies, some adjustment in the Marion County tax levies was necessary if they were to be used to estimate the taxes of other counties. This adjustment procedure is given below for Marion and Dickinson Counties and then for Marion and Ottawa Counties

Example 1

Marion (1520) Dickinson (1560)
1560-1520 = 40

40 divided by 1520 equals 2.6 percent, Dickinson County tax assessment and tax levy increase over Marion County tax assessment and tax levy average for all tenure classes.

Example 2

Marion (1520) Ottawa (1260)
1520-1260 = 260

260 divided by 1520 equals 17.1 percent. Ottawa County tax assessment and tax levy decrease under Marion County tax assessment and tax levy average for all tenure classes. The percentage changes in Marion County tax levies and

assessment needed for them to represent other counties are shown in Table 7. Additional information will appear on the subject of tax levy adjustments in a later section.

Table 7. Percentage adjustments required to the Marion County tax levies and assessments, 1958.

County	Percent increase or decrease in Marion County sample figures: Increase	Decrease
Clay		15.8
Cloud	7.5	
Dickinson	2.6	
Marion	0	0
Ottawa		17.1
Saline		35.9

Tax Levy on Farm Operators

A breakdown of tax assessments and tax levies by tenure class appears for Marion County in Tables 25, 26, and 27 of the Appendix. Limited information is used to show the estimated tax levy on farm operators in Marion County (Table 8) and Type-of-Farming Area 6a (Table 9).

Table 8. Estimates of property tax levies for farm operators in Marion County, by tenure, 1958.[1]

Tenure	Number of farm operators	Average real estate tax levy	Average personal property tax levy	Average total property tax levy	Totals
Owners	488	$312.06	$113.67	$425.70	$207,742
Part owners	694	284.96	145.46	430.42	298,711
Tenants	695	0	91.90	91.90	63,870
Totals	1,877				570,323

[1] Does not include tax on grain, dogs, money and credit.

Of the total tax levy in Marion County, 36.4 percent fell on farm owner-operators, 52.4 percent on farm part owner-operators, and 11.2 percent on farm

tenant-operators. Sixty-one percent of the tax levy was on real estate; 39 percent was on personal property. If tax levies on grain, dogs, money and credit were included, the total tax levy for owner-operators would be increased by $1,074, part owner-operators by $5,359, and tenant-operators by $5,037.

All counties in Area 6a, had the tax levies and tax assessments obtained in the Marion County sample adjusted to conform with the data presented in the section on "Mill Levy and Percent Assessed Value." For illustration, consider Clay County. The average tax levy (real estate and personal) per acre for owner-operators in Marion County was $2. The $2 figure per acre was obtained by dividing the average total property tax for owners in Marion County by the average acreage of owner-operator farms in Marion County. This $2 figure was multiplied by 84.2 percent to adjust for the variation in mill levy and percent assessed value between Marion County and Clay County. The result was $1.68, which would rspresent the average per acre total property tax for the owner-operators in Clay County. The $1.68 per acre tax would be multiplied by 231, the 1968 projected average acreage of owners in Clay County. The result would be the total tax per farm exclusive of tax on grain, dogs, money and credit. Division of this total tax figure between the real estate and personal propsrty tax levy was on the same percentage basis as Marion County. Similar procedures were carried out for part owners and tenants, as well as for the other counties in Area 6a. No adjustments were made in the Marion County tax levies on grain, dogs, money or credit before being used in other counties. For example, the average tax levy on grain, dogs, money and credit for owner-operators in Marion County were multiplied by the number of owner-operators in Clay County to provide a tax levy estimate for owner-operators in Clay County.

A more complete breakdown of the property tax for each county is found in Table 29 of the Appendix. Summation of these data for Type-of-Farming Area 6a is in Table 9.

Table 9. Estimates of property tax levies for farm operators in Area 6a, by tenure.

Tenure	Number of farm operators	Tax levy		
		Real estate	Personal[1]	Total
Owners	2373	$ 673,651	$ 245,382	$ 919,033
Part owners	2977	1,057,469	539,916	1,597,385
Tenants	2609	0	306,397	306,397
Totals	7959	1,731,120	1,091,695	2,822,815

[1] Does not include tax on grain, dogs, money and credit.

Of the total tax levy in Area 6a, 32.6 percent fell on owners, 56.6 percent on part owners, and 10.8 percent on tenants (61 percent on real estate and 39 percent on personal property). If tax levies on grain, dogs, money and credits were included, the total tax levy for owners would be increased by $5,221, part owners by $14,407 and tenants by $11,401.

The representativeness of the per acre tax levy used in each county was checked by the following method. The 1958 tax levy on "farm lands and improvements" for each county was divided by the 1958 acreage projection of land in farms. The tax levy on "farm lands and improvements" is available for each county on a "Statement of Valuations and Taxes Charged Thereon" prepared by each County Clerk. This division gave an average per acre tax levy. The Marion County per acre tax levy, adjusted and applied to other counties to determine absolute tax estimates, was derived from both the real estate and personal property tax levy. To make these per acre tax levies comparable to those computed from "farm lands and improvements," personal property taxes were

removed from per acre estimates. Comparable average per acre tax levies are presented in Table 10.

Table 10. Comparison of per acre real estate tax levies, by counties, 1958.

County	Average per acre tax levies computed by use of: County statements of valuations and taxes charged thereon	Average per acre tax levies computed by use of: Marion County tax levies adjusted for other counties
Clay	$1.52	$1.23
Cloud	1.51	1.58
Dickinson	1.61	1.50
Marion	1.40	1.47
Ottawa	1.39	1.22
Saline	1.48	.94

Table 10 indicates that Marion County acreage tax levies, adjusted for other counties, was lower for four counties than was the acre tax levies computed by the use of county "Statements of Valuations and Taxes Charged Thereon." This was especially true for Saline County. Apparently, the low rural assessment ratio used in Table 6 was not representative of rural sales in Saline County. This same condition may be true in other counties where the acre tax levy resulted in a low figure.

Tax Levy on Farm Property

The former Bureau of Agricultural Economics, in October of 1922, attempted to obtain a national estimate of property taxes levied on farmers by sending a questionaire to each crop reporter.[1] This provided an average total tax (real and personal) per acre for each state.

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[1] Ronald Bird, Taxes Levied on Farm Property in the United States and Methods of Estimating Them, Statistical Bulletin No. 189, p. 3.

Bird, in estimating farm real estate tax levies, used tax material collected by the Bureau of the Census as benchmark data.[1] Tax data reported to the Bureau of the Census by full owners not renting to others were used to determine the taxes levied per acre on all farm land.[2] This would assume that farms owned by full owners were geographically distributed throughout the taxing area and that the per acre tax levy of owners would be representative of the per acre tax of land operated by part owners, managers, and tenants.[3]

To obtain annual estimates for intercensal years, questionaires were mailed to county, town or township officials.

> Each respondent was asked to make a judgement selection of 12 farms (5 in each New England State and in Pennsylvania) locating in his taxing jurisdiction and to list for each, the acreage and total amount of real estate taxes levied for both the current and preceding year. He is asked to select farms that are geographically distributed throughout the taxing area and that are representative of the various size classes.[4]

> Usable sample farms are grouped into various census size classes (less than 10 acres, 10 to 19 acres, 20 to 49 acres, etc.) in each State for the current and the preceding years. The average tax per acre for each size class is computed and then multiplied by the estimated acreage in each size class to obtain the total taxes levied on all farms in that size class. Taxes levied on each size class are added together to obtain the taxes levied on the acreage in farms in each state for each of the two years. The amounts so estimated, are then divided by the total acreage in farms to obtain the average tax per acre for the current and the preceding year. The current tax per acre is then divided by the tax per acre for the preceding year to obtain the annual percentage change in the taxes levied in each State. The annual percentage change is then multiplied by the tax per acre used in the tax series of the preceding year to obtain the

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[1] Ibid., p. 5.

[2] Loc. cit.

[3] Ibid., p. 6.

[4] Loc. cit.

> estimated tax per acre for the current year. The tax-per-acre estimate for each State is then multiplied by the land-in-farms acreage to obtain the total tax levied.[1]

In the methodology outlined above, special assessments are excluded as far as possible. One major disadvantage with the above procedure is that if the tax official gives no reply, the area under his jurisdiction would not be represented in the sample. Here again, the question of who or what constitutes the farm population is not well defined.

Bird, writing on personal property taxes, indicated that state published reports from which it was possible to obtain directly, or by allocation, the assessed value of farm personalty could be multiplied by the applicable tax rate to give the farm personal property tax levy.[2] Assessment values of certain classes of personal property, such as livestock and farm machinery, were allocated entirely to farmers.[3] Other taxable classes, such as automobiles, trucks, furniture and personal effects, were allocated between farm and non-farm taxpayers.[4] This was done on the basis of the most recent Census data, including the most recent housing census.[5] As concerns household and personal affects, the

> amount apportioned to farms is derived by assuming that a direct relationship exists between the rental value of the home and the value of its household furniture. A ratio of the rental value of farm homes to the rental value of all homes in each state is derived. The total assessed value of household furniture is multiplied by this ratio to obtain the assessed value allocable to farms.[6]

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[1] Ibid., pp. 6 - 7.

[2] Ibid., pp. 9 - 10.

[3] Loc. cit.

[4] Loc. cit.

[5] Loc. cit.

[6] Loc. cit.

The method proposed by Bird for estimating real estate taxes and personal property taxes are not without merit. Certainly questionaires could be mailed to all taxing jurisdictions in the six counties to obtain real estate tax levies. The validity of the real estate tax data would depend upon the judgement of the tax officials and the percentage of response. However, selection of twelve representative farms that are geographically distributed in a certain area may be difficult.

The methodology suggested by Bird, for determining property tax levies may be fairly accurate. However, the procedure suggested by Bird becomes even more complicated when attempting to estimate the taxes of a sub-division or particular area of a state especially on personal property tax. In estimating the property taxes of the farm population for the entire state, Bird's method would probably be selected. It does, however, involve the division of aggregate tax figures between various groups.

This study, on the impact of taxes, will point out the large differences which apparently exist between real estate tax levy estimates of farm operators and the real estate tax levies on farm lands and improvements as presented in "Statements of Valuations and Taxes Charged Thereon, for 1958 by Classes." An example of this "Statement" for Marion County appears in Table 28 of the Appendix. The tax levy on "Farm Lands and Improvements" for Marion County totaled $905,560.52. The real estate levy, computed for farm operators in Marion County totaled $550,022. These data for Area 6a are in Table 11.

Table 11. Comparison of tax levy on "Farm Lands and Improvements" and tax levy on farm operators, by counties, 1958.

County	Tax levy on: Farm lands and improvements	Farm operators
Clay	$610,988	$220,088
Cloud	629,114	295,078
Dickinson	907,735	396,960
Marion	905,560	350,022
Ottawa	581,974	251,735
Saline	765,258	217,237
Totals	4,400,629	1,731,120

This comparison is to show the large variation which may exist between taxes levied on farm operators and taxes levied on "Farm Lands and Improvements." The comparison indicates that only 39.3 percent of taxes on "Farm Lands and Improvements" fall on farm operators. If tax data on full owners, not renting to others, were used to determine the tax per acre on the land farmed by tenants, the margin between the total real estate tax levy on farm operators and the "Farm Lands and Improvements" would be narrowed. Similar treatment of that portion of land rented by part owners would bring the total real estate tax levies for farm operators and the "Farm Lands and Improvements" closer together.

No tax figures were available on farm personal property. County tax levies and assessments are reported for "tangible personal property outside cities" and intangible personal property outside cities. Dr. Stocker, speaking of 1956 tax estimates in Kansas indicated that approximately 38 percent of the total personal property outside cities was personal property located on farms.[1]

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[1] Frederick Stocker, Letter to Dr. Wilfred H. Pine, January 7, 1960.

You raise the question, why is farm personal property such a small proportion of all personal property outside cities. The answer, I suspect, lies in the large value of such non-farm tangible personal property such as oil and gas properties, merchants stocks and manufacturers stocks, tools and equipment, pipelines and power transmission lines. Oil and gas properties alone were assessed in 1956 as $355 million, and I would guess that most of this is located outside cities. Farm personalty, I conclude, is in the minority even out in the country.[1]

Tax Levy on Business and Non-Business Property

Division of the tax levy between business and non-business requires a number of estimates, some being rather arbitrary. However, for simplicity, the only non-business real estate tax levy was on the house. This decision does not mean that the house is unnecessary to the farm operation. A house or other type of living quarters is also necessary for the factory worker. In England, the rental value of a house occupied by its owner is included as income in computing taxable income.[2] If this were done in the United States, this rental value would not be justified as income from the farm in the case of a farm operator living in his home. Then taxes on the house should not be attributed to the business operation.

Tax levies on the furniture and appliances were taxes on non-business items. On the basis of a sales tax study, discussed later, one third of the property tax levy on automobiles was considered a non-business tax levy and the other two-thirds a business tax levy. Tax levies on grain, dogs, money and credit were considered as non-business tax levies as they are "special tax levies."

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[1] Ibid., p. 2.

[2] Groves, op. cit., p. 160.

A summary of this tax levy division, between the business and non-business operation for Type-of-Farming Area 6a appears in Table 12. Table 30 in the Appendix, gives a more extensive breakdown.

Table 12. Division of property taxes between business and non-business property, 1958.

	Approximate percent business tax levy	Approximate percent non-business tax levy
Real estate	91.0	9.0
Personal property	86.0	14.0
Average for real estate and personal property	89.0	11.0

Professor Schmidt of Nebraska University, in his formula for tax allocation, indicated that two percent of the real estate tax and two percent of the personal property tax should be considered as personal. The remaining 98 percent of the tax, of each property classification, would go to the business operation. This formula for tax allocation appears in Chart 1, page 55.

Tax Levy Per Capita

Farm Management Association records, used later in this study for estimating sales tax, showed the average size of the farm operator family to number near four (3.94). Applying this average to all tenure types, the total estimated number of farm operators and family members was 7,508 for Marion County. The 1958 total population of Marion County was 15,736.[1] The average tax levy on real estate and personal property (excluding grain, dogs, money and credit)

[1] Kansas Government Journal, January 1959, p. 57.

per farm operator family member in Marion County would be $75.96. Subtracting the estimated tax levies ($570,323) of farm operators in Marion County from total tax levy figures, ($1,837,218 not including tax on grain, dogs, money and credit or other special taxes) and dividing the remainder ($1,266,895) by the remaining population (15,736-7,508 = 8,228) the average per capita tax levy would be $153.97.

Applying the above procedure to the entire area, including Marion County, the average tax levy on real estate and personal property (excluding grain, dogs, money and credit) per farm operator family members would be $88.67 (31,836 divided into $2,822,815). Subtracting the estimated tax levies of farm operators ($2,822,815) from total tax levy figures ($12,133,084) not including tax on grain, dogs, money and credit and other special tax for Type-of-Farming Area 6a, and dividing the remainder ($9,310,269) by the "remaining population," (113,658 - 31,836 = 81,822) the average per capita levy would be $113.79. Property tax levy estimates for the "remaining population" does not include State Assessed Properties (Public Service Corporations doing inter-state or inter-county business). Per capita tax levy estimates for those individuals not considered farm operator family members includes property taxes paid by business firms. The farm operator family member estimate of $88.67 included tenants with no real estate tax.

GENERAL SALES TAX

The general sales tax is one of a group called "consumption taxes," defined as levies paid by the consumer in the price of the commodity which he purchases.[1] Others included in this group are tariffs and special excise taxes

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[1] Groves, op. cit., p. 249.

on gasoline, liquor and tobacco. Only the general sales tax, sometimes referred to as the retail sales tax, will be considered in this sales tax study.

Kansas has had a retail general sales tax since 1937.[1] The latest publication, stating rules and regulations about the application of the sales tax, was prepared by the Department of Revenue in Topeka with an effective date of August 1, 1958. Prior to June 1, 1958, the retail sales tax was two percent of the selling price. Since that date, the retail sales tax has been two and one-half percent of the selling price. Regardless of how belated its entry into the tax field, the general sales tax is probably well established and will remain as one of the several sources of revenue. The first such tax was imposed by Mississippi in 1932. The business occupation tax was a forerunner of the sales tax in the United States.[2]

Methods of Determining Sales Tax

Several methods have been used in estimating the sales tax of the farm population. Walker and Hulse, at the University of Maryland, used farm schedules filed in Maryland for State income tax purposes to determine sales tax for various types of farming enterprises.[3] Along with this source of data, the Maryland study made use of data collected by questionaires to determine expenditures for farm family use items. One important conclusion drawn by the

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[1] Publication No. 200, Financing Kansas Government, Part II, Ten Years in Prospect, p. 28.

[2] John F. Due, Sales Taxation, p. 290.

[3] W. P. Walker and F. E. Hulse, Sales Taxes and Their Application to Farmers, Bulletin A-76, p. 91.

Maryland study is that the taxable business expenditure is dependent on the type of farming enterprise. This condition may exist in Kansas as well as Maryland.

A study conducted at the University of Illinois presented figures on the estimated sales tax paid by farmers on household items and the estimated sales tax paid on machinery purchases by farm operators.[1] The amount of sales taxes paid on household and personal consumption amounted to 35 cents an acre in 1955. Sales tax on machinery purchases was 14 cents per acre. In 1955, about five percent of the amount of sales taxes paid to the State of Illinois was on household and personal consumption items used by farm operators. There is some uncertainty as to whether these sales taxes are on a fiscal or calendar year basis, but it is presumed that they are on a fiscal year basis. The sales tax rate in Illinois was two percent of the first six months in 1955 and two and one-half percent for the last six months. Very little information was available in either the Maryland or the Illinois study on methodology used or manner of defining the universe.

Bird suggested the following method for estimating sales taxes paid by a state's farm population.[2] The farm population was defined to include all individuals who consider their residences as on farms. This is the same definition of the farm population as that used by the Census of Population. Necessary sales tax data, Bird indicated, could "usually be found in one or

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[1] Robert F. Hacker, "Sales Taxes Paid by Illinois Farmers," from Tax Costs Falling on Illinois Farmers, 1905-1955 by Charles L. Stewart, Luther C. McKinney and Robert F. Hacker, pp. 14-16.

[2] Ronald Bird, "A Procedure for Estimating State General Sales Taxes Paid by the Farm Population," Reprint from the Agricultural Finance Review, Vol. 18, pp. 30-31.

more reports of the State Government, taxpayers associations and the Bureau of the Census."[1] Bird's first approach was the "county method" where

> collections in the most rural third of the counties in each state were divided by the total population (as of July 1) of these counties to obtain per capita collection. These in turn were multiplied by the farm population (as of July 1) in the state to obtain estimated taxes paid by the state's farm population.[2]

> This method involves the assumption that the per capita money income of the population in the selected counties is about the same as that for the entire farm population in the state. A further assumption is made that the farm and non-farm population spend equal proportion of their money income in the counties in which they reside and an equal proportion on taxable goods.[3]

Bird proposed an alternate method called the "income" method. First, a ratio of per capita farm income to per capita total income in each state was derived for the year.[4]

> The per capita retail sales tax collections for each state were multiplied by this ratio to determine the assumed per capita tax collected from the farm population in each state. This amount was then multiplied by the farm population (as of July 1) to obtain the total tax. Thus, alternate estimates were obtained for each of the states having county data.[5]

The Kansas Farm Management Association Account records and Association Home Account records of 92 farm operators from Type-of-Farming Areas, 6a, 6b, 7, 8 and 9 were used to estimate the sales tax of farm operators in Central Kansas. The distribution of these 92 farm operators, by tenure type, is given in Table 13.

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[1] Loc. cit.

[2] Loc. cit.

[3] Loc. cit.

[4] Loc. cit.

[5] Loc. cit.

Table 13. Distribution of sample farm operators in Type-of-Farming areas 6a, 6b, 7, 8, and 9 by tenure, 1958.

Type of farming area	Tenure			
	Owner	Part owner	Tenant	Total
6a	0	10	3	13
6b	3	19	4	26
7	0	14	3	17
8	0	14	2	16
9	0	16	4	20
Totals	3	73	16	92

A further catorization of these 92 farm operators, which will be discussed later in this section of the study on the sales tax, was to divide the operators into four equal groups or quartiles on the basis of gross farm income. After being divided in this manner, the four classifications of Gross Farm Income were $8,778 - $14,715, $14,950 - $14,324, $19,875 - $28,246 and $29,038 - $65,496.

Each major expenditure, both home (non-business) and farm (business) were available in the Farm Management Association Accounts and Association Home Accounts. The first problem was to determine what percentage of each expenditure class was taxable and then to apply the sales tax rate to each class. The tax rate was adjusted to an annual average of 2.29 percent due to its change on June 1, 1958, from two percent to two and one-half percent of the selling price of the taxable item. This adjustment is shown below:

5 months x .02 equals .10
7 months x .025 equals .175
.275 divided by 12 equals 2.29 percent.

Non-business Expenditures

Automobile expense (home share): (33 percent of expenditure taxable) Items included are labor repairs costs, repair parts, fuel, oil, grease jobs,

insurance, et cetera. Special excise taxes exist on gasoline so these taxes are not included in the general sales tax. Labor and insurance are not subject to sales tax; however, repair parts such as batteries, tires, windshield wipers, oil and oil filters are subject to sales tax. No depreciation figure for the automobile was shown in the Association Home records, nor was it included under automobile expenses. As the purchase price, less trade in allowance for new or used cars is taxable, the yearly depreciation was estimated and used as a base to determine the sales tax paid on the home share of the car. Depreciation was estimated to be two-thirds of the automobile expense. In some cases, this depreciation figure would be unreasonable, but on an average, it was reasonable. As indicated previously, for the entire 92 records, the automobile expense (home share) totaled $16,899, while the farm share totaled $32,376. Two-thirds of this amount (49,275) divided by 92 gave an average annual depreciation of approximately $360 per automobile.

Telephone and electricity: (100 percent taxable)

Food purchased: (100 percent taxable) School lunches are not taxable as well as individual purchases of items costing less than 17 cents. One reason for the application of the sales tax, to the full expenditure, is due to the bracket system. An example of this would be eight individual 17 cent purchases which would cost $1.36 with eight cents tax. A single purchase of $1.37 would have four cents tax. Thus the sales tax can actually be greater than the average sales tax rate per dollar expenditure would indicate.

Household operation: (80 percent taxable) This classification includes such items as cleaning supplies, light bulbs, paper towels, moving expenditures, etc.

Furniture and equipment: (90 percent taxable) This classification contains such items as canning equipment, furniture repair, refrigerator, yard hose, etc.

House upkeep and repair: (60 percent taxable) This classification includes such items as bathroom fixtures, house repair including labor, etc. A non-taxable expenditure would be labor charges.

Personal: (25 percent taxable) Most of the items in this classification are subject to excise taxes, but not the general sales tax. Included among these items are cosmetics, perfumes, and cigarettes.

Clothing: (90 percent taxable) Association Home Account records break expenditures on clothing into three groups, father, mother, and children. Included in this classification are accessories, footwear, outer garments, trimming for dresses, dry cleaning, shoe repair, etc.

Education and recreation: (50 percent taxable) In this classification are such items as books, tuition, magazines, movies, television purchase and repair costs.

Medical care: (40 percent taxable) Included here are such items as adhesive tape, dental and doctor bills, medicine, eye glasses, etc. The service of physicians, surgeons, dentists, hospital and infirmaries are not subject to sales tax.[1] Eye glasses are taxable, as well as other medical supplies.

Gifts: (75 percent taxable) This classification includes such items as greeting cards and all gifts, with the exception of those given to members within the family.

Depreciation on house: (25 percent taxable) No depreciation was indicated on the Association Home Account records, but building depreciation was shown on Farm Management Association records. Taxable building materials were estimated to be 50 percent of the total expenditure in this class. Twenty-five percent of this taxable expenditure was applicable to the house. Additional

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[1] Sales and Compensating Tax Regulations and Statutes, State of Kansas, pp. 25-26.

expenditures in this classification are labor wages and non-taxable building items. This analysis assumes that the computed sales tax was in existance at the time the buildings, being depreciated, were erected. Many buildings are of more distant construction than 1937 and the computed tax rate used in this study is higher than existed for many years since that date. If current construction (in dollars) is not equal to current depreciation (in dollars) the sales tax applicable to the building materials tend toward overestimation. Another possibility is that buildings are being depreciated more than once. This would make the depreciation figure larger than it should be.

A category of non-business expenditures on which no sales tax is paid was contributions.

Business Expenditures

Automobile expenses: (33 percent taxable) The same expenditures are taxable for the automobile under business expenditures as under non-business expenditures. The farm share of the automobile depreciation was assumed to be reported under the classification "Depreciation on Machinery."

Equipment and machine repair: (80 percent taxable) This classification includes repair costs to trucks, tractors, farm machinery, small tools, etc. Labor cost is not taxable, but many farmers perform their own minor repairs, leaving parts to constitute most of the repair costs.

Veterinary and livestock expense: (10 percent taxable) Included in this classification are such items as breeding fees, veterinary feeds, vaccines, other medical supplies, marketing costs, etc.

Crop expense: (40 percent taxable) Items included in this category are twine, bale ties, spray materials, seeds, etc.

Telephone and electricity: (100 percent taxable)

Repair on Improvements: (50 percent taxable) This category contains repair on farm buildings, fences, and other improvements, except the dwelling. Labor costs constitute a large part of this expenditure.

Depreciation on Machinery: (90 percent taxable) The price paid for new and used machinery less trade in value of old machinery is taxable. Sales taxes are applicable to the entire depreciation allowance. Some machinery may be depreciated more than once. Even at community sales or public auctions, with the exception of livestock and poultry, items are subject to the sales tax.[1] Evasion of sales tax may exist on transactions of this nature.

Depreciation on buildings: (25 percent taxable) Taxable building materials may constitute about 50 percent of the total expenditure. Twenty-five percent of this taxable expenditure was included for the house.

Other major classifications of business expenditures not subject to sales taxes include feed bought, hired labor, fuel or oil for farm use, crop trucking, machine hire, fertilizer, lime, farm organization dues, feed, miscellaneous taxes, cash rent, interest, and insurance.

Sales Tax on Farm Operators

Tables 31 and 32 in the Appendix contain information on size of farm operation, size of income, and source of income for Central Kansas farmers. Owners and part owners are considered as one tenure class with tenants being the other tenure class. The sample size in some classes is extremely small so the information presented can only be an indication of the conditions which may exist. A part of the information which appears in the Appendix is given in Tables 14 and 15.

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[1] Ibid., p. 5.

Table 14. Average gross farm income, net farm income, and sales tax for gross farm income classifications, by tenure, 1958.

Range of gross farm income classifications	Average gross farm income		Average net farm income		Sales taxes, business and non-business	
	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
$ 8,778-$14,715	$12,345	$12,102	$ 4,081	$ 2,929	$109.25	$125.98
14,950-19,324	17,322	16,521	5,131	3,653	143.88	123.69
19,575-28,246	23,619	22,369	8,544	8,133	156.80	132.23
29,038-65,496	38,214	47,506	12,984	15,110	209.54	169.54
Averages for all ranges	23,639	19,834	7,764	5,654	157.73	131.85

Table 15. Average gross farm income, net farm income, and sales tax for Type-of-Farming areas, by tenure, 1958.

Type of farming area	Average gross farm income		Average net farm income		Sales taxes, business and non-business	
	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
6a	$23,900	$14,700	$9,401	$2,228	$142.21	$154.90
6b	25,209	30,380	8,371	9,214	165.38	135.63
7	25,213	17,289	9,856	8,465	153.97	127.91
8	18,501	16,739	5,943	3,254	128.74	111.89
9	34,436	16,593	6,620	3,756	188.18	123.90
Averages for all areas	23,639	19,834	7,964	5,654	157.73	131.85

With one exception, Table 14 reveals that the sales tax for both tenure classes increases as gross income increases. The sales tax of the owners and part owners, with the exception of the lowest gross farm income classification, exceeds the sales tax of the tenant. If the average business sales tax of the tenant exceeds that of the owner and part owner, it is accounted for mainly by greater taxable machinery and equipment repair, and greater machinery depreciation. Supporting the maintenance of the business sales tax of the owner and part owner over the sales tax of the tenant is the larger taxable building depreciation of the owner and part owners.

Two of the major non-business expense items causing the sales tax of tenants to exceed those of the owner and part owner were food and clothing. Depreciation of the house helped to maintain owner and part owner sales tax in excess of tenant sales tax.

The average business expenditure in Central Kansas for owners and part owners was $14,675, with $4223 (or 26.9 percent) being affected by the sales tax. The average business expenditure for tenants in the same area was $14,180 with $3,462 (or 24.4 percent) being affected by the sales tax. The average business expenditure for owners and part owners in the gross income classification $8,778-$14,715 was $8,265 with $2,730 (or 33 percent) being affected by the sales tax. The average business expenditure for tenants in gross income classification $8,778-$14,715 was $9,172 with $3,121 (or 34 percent) being affected by the sales tax. The average non-business expenditure for owners and part owners in the same classification was $2,569 with $2,061 (or 80 percent) being affected by the sales tax. For tenants the average expenditure was $2,982 with $2,381 (or 80 percent) being affected by the sales tax.

In a publication prepared by the Kansas State Board of Agriculture the 1958 gross returns for Kansas farm operators was estimated at $10,530 per farm for the state's 117,000 farms.[1] This gross return falls into the lowest quartile ($8,728-$14,715) on the gross farm income classification, where the average gross income was $12,345 for owners and part owners and $12,102 for tenants.

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[1] Kansas Crop and Livestock Reporting Service, Report on Kansas 1958 Farm Income, March 16, 1959.

The publication mentioned previously gave the realized net income per farm in Kansas as $2,526 in 1958. The average net farm income in the lowest quartile was $4,081 for owners and part owners and $2,929 for tenants. The "realized net farm income" may not be computed in the same manner as "net farm income" is computed on Farm Management records. To determine the aggregate sales tax of farm operators in Central Kansas the average sales tax ($109.25 for owners and part owners and $125.98 for tenants in the lowest gross farm income classification) was multiplied by the number of owners and part owners and tenants in Central Kansas, respectively (Table 16).

As indicated previously, the number of farm operators (assuming the number of farms to be equal to the number of farm operators) totaled 117,000 for Kansas in 1958. The 1954 Census of Agriculture gave the number of farms in Kansas as 120,167. The total number of farms in the type of farming areas under consideration (6a, 6b, 7, 8, and 9) in the 1954 Census of Agriculture totaled 46,462 (38.7 percent of 120,167). Applying this percentage (38.7) to the 117,000 farms, the result was 45,279 farms. Of these 45,279 farms, 29.7 percent were owner-operated, 36.2 percent were part owner-operated and 34.1 percent were tenant-operated. The number of owners in the sample was small so owners and part owners were combined into one tenure group.

The average sales taxes for owner and part owners, in the gross farm income classification most representative, was $109.25. This amount multiplied by the number of owners and part owners (29,839) gave an aggregate sales tax estimate of $3,259,911 for Central Kansas. The representative sales tax ($125.98) for each tenant, multiplied by the number of tenants, gave an aggregate sales tax estimate of $1,945,131 for Central Kansas. The total sales tax for farm operators in Area 6a, 6b, 7, 8 and 9 totaled $5,205,042 (Table 16).

Table 16. Estimate of sales taxes paid by farm operators in Type-of-Farming areas 6a, 6b, 7, 8, and 9, by tenure, 1958.

Tenure	Average sales tax for gross farm income classification $8,778-$14,715	Number of farm operators	Aggregate sales tax estimates
Owner and part owner	$109.25	29,839	$3,259,911
Tenants	125.98	15,440	1,945,131
Totals		45,279	5,205,042

Sales Tax on the Farm Population

The "county method" proposed by Bird was used to estimate the sales tax of the farm population in Types-of-Farming Areas 6a, 6b, 7, 8, and 9. The area studied was composed of 35 counties. The total sales tax collection for the most rural 12 counties totaled $1,930,183.[1] The 1958 total population of these counties totaled 117,460.[2] Division of the county sales tax collection by the total population of the 12 counties gave an average per capita collection of $16.43. This average multiplied by the farm population for the 35 counties, gave an estimate of the sales tax paid by the farm population (147,098) in Type-of-Farming Areas 6a, 6b, 7, 8, and 9. This estimate was $2,416,820.

The 1958 farm population for the 35 counties was determined as follows. The total population for each of the type-of-farming areas being studied was drawn from the Kansas Government Journal.[3] The percent of the 1950 rural

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[1] From sales tax data furnished by the Department of Revenue, Sales Tax Division, Topeka, Kansas

[2] Kansas Government Journal, January, 1959, pp. 57-58.

[3] Loc. cit.

farm population in each of these areas was drawn from a study by James H. Copp.[1] Application of the appropriate percentages of the farm population in each area, resulted in a rural farm population of 182,277. A publication by the United States Department of Agriculture gave the percentage change in farm population between 1950 and 1958.[2] The farm population decline for the West, North Central geographic division, which includes Kansas, was 19.3 percent. The farm population for Central Kansas was 147,098.

The estimated sales taxes of farm operators exceeded the estimated sales taxes paid by the total farm population. This condition may be due to, (1) overestimation of the percentage of farm operator expenditures taxable, (2) the methodology suggested by Bird may not result in a good estimate of the average sales tax paid by a member of the farm population, and (3) the farm population may be underestimated. Bird, commenting on the "county method" stated, "this method involves the assumption that the per capita money income of the population in the selected counties is almost the same as that for the entire state."[3] Without attempting to prove or disprove this statement (information collected for this study would be inadequate) it should be pointed out that six of the most rural 12 counties were located in Type-of-Farming Area 8, where the average gross income for owners and part owners in Farm Management sample records was $18,501 and for tenants $16,739. For owners and part owners, this was the lowest average gross farm income for all of the five type-of-farming areas. For tenants, this average gross farm income was third from the lowest, the lowest being $14,700 in the five type-of-farming areas.

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[1] James H. Copp, Population Trends in Kansas from 1940 to 1950, p. 12.

[2] Farm Population Estimates for 1958, USDA, AMS-80, p. 3.

[3] Bird, op. cit., p. 31.

Another assumption made by Bird was "that the farm and non-farm populations spend an equal proportion of their money income in the counties in which they reside and an equal proportion on taxable goods."[1] This study does not reveal information about the proportion of incomes spent by the farm and non-farm population in any particular geographic area. The taxable business expenditures in this tax study ranges from a low of 25.1 percent in Area 6a to a high of 29 percent in Area 9 for owners and part owners. For tenants, this range was from a low of 18.5 percent in Area 6b to a high of 31.5 percent in Area 6a. Taxable non-business expenditures, ranged from a low of 69.9 percent in Area 7 to a high of 79.8 percent in Area 6a for owners and part owners. For tenants, the range was from a low of 75.5 percent in Area 6b to a high of 83.9 percent in Area 7.

Sales Tax on Business and Non-Business Expenditures

Sales tax falling on expenditures listed in the Association Home Account records were non-business sales tax. Sales tax falling on expenditures listed in the Farm Management Association records were considered as business sales tax, with one exception. Depreciation figures on buildings, the proportion of which was subject to sales tax, was divided evenly between business and non-business expenses. Several other items such as automobile expenses, telephone and electricity, were listed separately in both the Farm and Home records. Table 37 in the Appendix shows this information for the most representative gross income classifications ($8,778-$14,715). To summarize this information, the average sales tax for owners and part owners was $109.25 with $62.51 or 57.2 percent business sales tax and $46.74 or 42.8 percent non-business sales

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[1] Loc. cit.

tax. For tenants, the average sales tax was $125.98 with $71.45 or 56.7 percent business sales tax and $54.53 or 43.3 percent non-business sales tax.

Sales Tax Per Capita

The number of farms in Type-of-Farming Areas 6a, 6b, 7, 8, and 9 totaled 45,279. The average size of the sample farm operator families was four. This would give a total farm operator population (farm operator and family members) of 181,116. This figure divided into $5,205,042, the estimated sales taxes of the farm operators, gave a per capita average of $28.74. Sales tax collections for 1958 in Types-of-Farming Areas 6a, 6b, 7, 8, and 9 totaled $21,476,387.[1] Subtracting the estimated farm operator sales tax ($5,205,042) gave a remainder of $16,271,345. The 1958 total population in the area under consideration was 835,161. The estimated farm population (181,116) subtracted from this figure gave a remainder of 654,045. The non-farm sales tax (exclusive of farm operator sales tax) gave a per capita average of $24.88. If the total sales tax receipts were divided by the total population of the area under consideration, the average per capita sales tax would be $25.72.

The per capita sales tax collection in fiscal year 1956, for Kansas was reported as $25.04.[2] The retail sales tax rate at this time was two percent.

Fig. 2 gives an indication of the impact of the sales tax on farm operators and its relationship between tenure types.

Estimates made in this study of the impact of the sales tax on farm operators and others, may be somewhat indicative of the actual impact of the sales tax. It is suggested, that if these data are accepted, it should be done so with

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[1] Sales tax data furnished by the Department of Revenue, Sales Tax Division, Topeka, Kansas.

[2] Report of the Iowa Taxation Study Committee, Part I, p. 48.

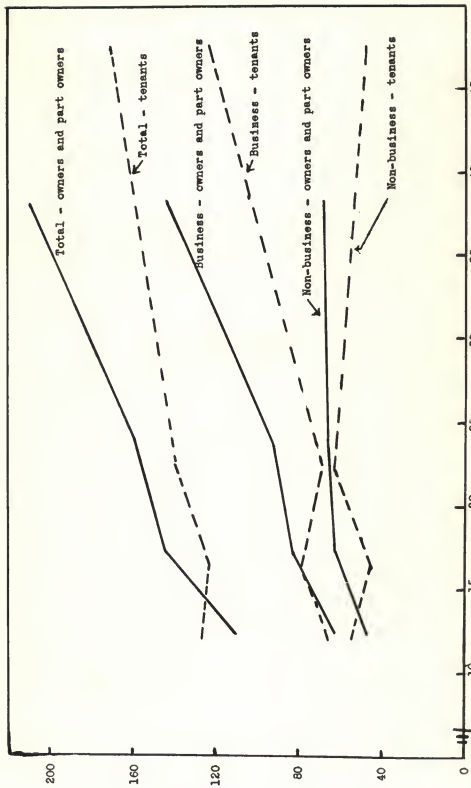

Fig. 2. Sales tax per farm operator in Central Kansas, 1968.

certain reservations. It would be well to keep in mind such factors as, (1) the extreme smallness of sample sizes, (2) brief analysis of percentage of expenditures subject to the sales tax, (3) possible error in estimating the farm population.

INCOME TAX

"The net income tax is probably the most difficult way of taxing the agricultural sector, in view of the fact that farmers keep inadequate records, or none at all, even in developed countries."[1]

Methods of Determining Income Tax

This section of the tax study involves an analysis of the income tax, both State and Federal, which falls upon the farm operator and the individuals submitting State income tax returns with a "Schedule of Farm Income and Expenses" attached. Sources of empirical data were Farm Management Association records and anonymous State income tax returns submitted to the Income Tax Division at Topeka. Publications prepared by the Agriculture Research Service, USDA, supplied much of the secondary information.

Methods Used in Other Studies

Dr. Stocker, Agricultural Research Service, indicated that the Internal Revenue Service, under present reporting procedures, could not provide income

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[1] Haskel P. Wald, Editor, Agricultural Taxation and Economic Development, p. 20.

tax data on groups such as the farm population or even farm operators. The basis for this situation is the difficulty encountered in receiving accurate and uniform responses from those who file tax returns to questions regarding their occupations.

A procedure was developed by Dr. Stocker which estimates the computed liabilities of the Federal Income tax of farm people on a national scale. This procedure is too involved and too lengthy to be presented in this study. However, some of the essential steps involved were, (1) to estimate the number of tax paying units that make up the farm population, (2) range these units by size of income, (3) determination of taxable income, and (4) make adjustments to the basic data. Some of the sources of information were, Bureau of the Census, Agricultural Marketing Service, USDA, and Department of Labor. Methods and procedures for estimating the Federal income tax of the farm population is discussed from pages 15-32 in ARS 43-11.[1] No Federal income tax estimate is available for the farm people of Kansas. The same situation is true in regard to Kansas State income tax.

Methods Used in This Study

The area under consideration in this part of the study is the same geographical area as considered under the sales tax study, i.e., Types-of-Farming Areas 6a, 6b, 7, 8, and 9. The 92 Kansas Farm Management Association records used in the sales tax study were also used in this part of the study. Each association record gives the Federal income tax and State income tax of the farm operator. Where no income tax was recorded, it was assumed that no income tax

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[1] The Impact of Federal Income Taxes on Farm People, U.S. Department of Agriculture, Agriculture Research Service, Washington, D. C.

was paid. The breakdown of analysis was the same as that followed in the sales tax study; that is, the income tax per farm operator in each type-of-farming area was estimated along with estimates of income tax in various gross income classifications. Estimates were also made on the income tax per operator family member. This information is found in Tables 38 and 39 of the Appendix. The income tax information provided by the Farm Management Association records are used later in estimating the State and Federal income tax of the farm operators in Type-of-Farming Areas 6a, 6b, 7, 8 and 9.

A sample of individuals submitting State income tax returns with a "Schedule of Farm Income and Expenses" was taken for the area under consideration. One hundred and fifty-two Kansas State income tax returns were drawn from the State Commission of Revenues and Taxation at Topeka. These returns were randomly selected from all returns received during the months of January, February, March and April. The names were kept anonymous so it was impossible to use this random selection of individuals as a source of tax information, beyond that obtained from the income tax form. Federal and State income taxes were indicated on these tax returns. Distribution of the income tax returns is indicated in Table 17.

Table 17. Distribution of 152 Kansas State income tax returns for 1958.

Type of Farming Area	Number of income tax returns
6a	21
6b	31
7	28
8	49
9	23
Total	152

The average Federal and State income tax, per tax return, was determined for each Type-of-Farming Area 6a, 6b, 7, 8 and 9. A weighted average was

determined for the five areas. Table 40 in the Appendix shows these figures along with other information. If the sample was sufficiently large and properly randomized, the weighted average would give an acceptable estimate of the Federal and State income tax of individuals showing farm income and expenses, if that income and expense is listed as farm income and expense. As the number of State income tax returns showing farm income and expense from Central Kansas was not known, no income tax estimate could be made for this group of individuals.

Of the 152 income tax returns, 68.5 percent of the adjusted gross income was from farming. The percentage that net farm profit is of adjusted gross income should be indicative of the percentage of the adjusted gross income received from farming. (Capital gains would be excluded from this figure. One hundred thirty-nine of the 152 State income tax returns showed an occupational breakdown (Table 18).

Table 18. Occupations of a sample of 152 individuals submitting 1958 State income tax returns.

Occupational class	Number in occupational class
Farming	125
Farming plus other occupation	11
Other single occupation	3
Not given	13
Total	152

Income Tax on Farm Operators

Kansas Farm Management Association records were used in making the estimate of income tax on farm operators. The gross farm income classification $8,778-$14,715 was considered as giving the best estimate of Federal and State income tax on farm operators in Central Kansas. As indicated, in the Sales tax study,

the estimated number of owners and part owners in this entire area was 29,839, while the estimated number of tenants was 15,440. The information in Table 19 summarizes the estimated Federal and State income tax of the 45,279 farm operators in Central Kansas.

Table 19. Estimates of State and Federal income tax paid by farm operators in Central Kansas by tenure, 1958.

Tenure	Number of farm operators	Average income tax		Total income tax		Total Federal and State income tax
		Federal	State	Federal	State	
Owner and part owner	29,839	$268.94	$20.12	$8,024,901	$600,361	$8,625,262
Tenant	15,440	251.67	18.33	3,885,785	283,015	4,168,800
Totals	45,279			11,910,686	883,376	12,794,062

The sample size of the gross income classification is extremely small, composed of only 17 owners and part owners and six tenants. For this reason, these estimates may not be accurate.

Income Tax on Business and Non-Business Operation

The income tax was considered a personal or non-business tax. This applies to the State as well as the Federal income tax. The farm operation is not taxed per se unless it is an incorporated business; it would then be subject to corporate income tax. Under these circumstances, the income taxes would be allocated to the business operation.

Income Tax Per Capita

The average size of the farm operator family in the entire sample, drawn from Farm Management Association records, was four. However, income taxes calculated for gross income classification $8,778-$14,715, was considered

representative for farm operators in Central Kansas. Per capita income tax for farm operator family members for Type-of-Farming Areas 6a, 6b, 7, 8 and 9 is summarized in Table 20.

Table 20. Per capita Federal and State income tax estimates for farm operator family members in Central Kansas, 1958.

Number of farm operators	45,279
Average family size	4
Total family members	181,116
Total income tax:	
Federal	$11,910,686
State	883,376
Total	12,794,062
Per capita income tax:	
Federal	$65.76
State	4.88
Total	70.64

The information on State income tax data in Table 21 was provided by the Department of Revenue at Topeka.

Table 21. State income tax information, 1958.

	Returns filed on income	Tax collected on income
Individual	657,247	$22,589,371.34
Corporation	10,234	7,650,330.03
Total	667,481	30,239,701.37

The 1958 total population of Kansas was 2,100,665. The total individual State income tax collected was $22,589,371. This gives an average per capita state income tax of $10.75 (Corporation taxes excluded). With the information available, it was impossible to determine what part of the State tax collected was from Type-of-Farming Areas 6a, 6b, 7, 8 and 9. Thus, it was impossible to

compare the per capita tax payments of farm operators with other per capita payments after subtracting farm operator income payments. This comparison could be made if State income tax estimate of farm operators was made on a State-wide basis.

The information on Federal income tax data in Table 22 was obtained from the Statistical Abstract of the United States.[1]

Table 22. Information on 1956, 1957 and 1958 Federal income tax collected in Kansas (in million dollars).

	Year		
	1956	1957	1958
Individual income and employment taxes[1]	344	364	376
Corporate income and profit taxes[2]	131	122	113
Total taxes[3]	520	537	546

[1] Includes taxes withheld in wages and salaries.
[2] Includes tax on business incomes of exempt organizations.
[3] Includes miscellaneous taxes.

The data in Table 22 is on a fiscal year basis. Tax receipts were classified by States in which the collections were made, and do not necessarily indicate the tax burden of persons in that state. However, in the attempt to arrive at an estimate of the average per capita Federal income tax for 1958, 376 million was used to represent Kansas individual income tax payments for the calendar year of 1958. This would give an average per capita Federal income tax estimate of $179. With the information available, it was impossible to determine what part of the Federal individual income tax collection was from

[1] Statistical Abstract of the United States, 1959, p. 371.

Central Kansas. Thus, it was impossible to compare the per capita tax payments of farm operators with other per capita payments after subtracting farm operator income tax payments. This comparison could be made if the Federal income tax estimate of farm operators was made on a state-wide basis.

Estimates of State and Federal income taxes paid by farm operators and "others" are only indicative of the situation which may exist. It would be well to keep in mind the (1) smallness of the sample, (2) possible error in estimating the size of the farm operator population, and (3) per capita Federal and State income tax estimates do not have estimated farm operator income tax subtracted.

In the planning stage of this study, it was thought that State income tax returns might yield considerable information on tax payments. This was in regard to certain other taxes, as well as State and Federal income taxes. The "Schedule of Farm Income and Expenses" lists "Taxes" as a deductible farm expense. This included taxes paid on factors used in the farm business operation. It did not include taxes on the dwelling. Of the 152 returns used in this study, 140 made an entry for "Taxes." On the "Kansas State Individual Income Tax Return," the "Taxes Paid" listed in "Schedule 8" were personal property, real estate, gasoline, sales, car tags, social security, railroad retirement and other. This, if listed, would have provided information on the personal and non-business taxes. Of the 152 State income tax returns, the number of entries in Schedule 8 were as indicated in Table 23.

Table 23. Number of entries in various tax classes on 152 State income tax returns for 1958.

Tax class	Number of entries
Personal property	8
Personal property and real estate (combined)	2
Real estate	6
Gas	11
Sales	23
Car tags	15
Social Security	14
Railroad Retirement	0
Other	1

State income tax returns failed to provide significant information on personal tax payments.

OTHER TAXES

No attempt was made in this tax study to estimate other taxes paid by farm operators. However, the taxes which are listed below would need to be studied before arriving at the tax impact of farm operators or other groups. Some of these various taxes are as follows:

Truck license

Automobile license

Driver license (or permit)

Federal excise taxes

State liquor taxes

State tobacco taxes

Social Security taxes

Motor fuel taxes

Special District taxes

Death taxes

Gift taxes

Census data and information available at the State Motor Vehicle Department, may give close estimates on the number of truck and automobile licenses, along with drivers permits, in possession of farm operators. The entire truck license fee would be a business tax. The entire cost of the driver's permit would be a personal or non-business tax. Allocation of the automobile license, in accordance with procedures previously used in this study, would have 33 percent going to non-business taxes and 67 percent going to business taxes.

Federal excise taxes may be allocated on a per capita basis.

State liquor and tobacco taxes would be allocated on a per capita basis. Collection figures are available from the Cereal Malt Beverage Tax Division and Cigarette Tax Division, Commission of Revenue and Taxation at Topeka.

Professor Schmidt, in a formula for tax allocation, (see Chart 1,) page 55) suggested allocating 33 1/3 percent of the social security taxes to the business. Omission (zero) was suggested for social security taxes as far as non-business or personal allocation was concerned. The social security tax is computed on Schedule F of the Federal income tax return for self-employed individuals. As for the "Kansas State Individual Income Tax Return," under Schedule 8 "Taxes Paid," social security taxes may be listed and used as a deduction. However, many individuals use the standard deduction so this information is not given. The best source of this information may be Farm Management Association records. Here, the social security tax may include that paid by the farm operator on self-employment as well as the portion which he is legally required to pay on employees.

The motor fuel tax consists of vehicle fuel tax, special fuel tax, state oil inspection tax and tax on the transportation of oil and liquid fuels. The

only one pertinent to farm operators is the vehicle fuel tax. The tax on fuels used for non-highway purposes is refunded if a refund permit has been obtained and proper application is made. Professor Schmidt, in his farm tax allocation, suggested omitting the gasoline tax (consider it a benefit tax) for the business operation; the gasoline tax is also omitted under the personal (non-business) allocation. On a non-farm operation, Professor Schmidt suggested the same treatment. This is the extent of the information which can be presented at this time.

With special assessment, Professor Schmidt suggested they be omitted for both farm and non-farm business operations. No reference was made to them under personal or non-business allocation. The same treatment was given to death and gift taxes.

Some of these tax allocations suggested by Professor Schmidt, may have been made on the basis of Nebraska State law, which may differ significantly from Kansas State law. This is an important aspect which a subsequent study would need to consider.

FARM	NONFARM
Business Operations	
Real Estate Tax (98%)	Real Estate Tax (100%)
Personal Property Tax (98%)	Personal Property Tax (100%)
Gasoline Tax (Omit: benefit tax)	Gasoline Tax (Omit: benefit tax)
Truck Licenses (100%)	Truck Licenses (100%)
Special District Taxes (Omit)	Special Assessments: (Omit)
Death & Gift Taxes (Omit)	Death & Gift Taxes (Omit)
Social Security Tax (33 1/3%)	Social Security Tax (100%)
Sales Tax, General:	Sales Tax, General:
On depreciation of machinery, 2%	On depreciation of machinery, 2%
On purchases of materials for repairs, maintenance and supplies, except feed, seed, and fertilizer, 2%	On purchases of materials for repairs, maintenance and supplies, 2%
Federal Excises (Omit)	Corporation income tax (100%)
Auto License (50%)	Federal Excises (Omit)
	Auto License (None, unless used in business)
	Special Business Taxes (100%)
Personal	
Real Estate Tax (2%)	Real Estate Tax (100%)
Personal Property Tax (2%)	Personal Property Tax (100%)
	Intangible Property Tax (100%)
Gasoline Tax (Omit)	Gasoline Tax (Omit)
Auto License (50%)	Auto License (100%, unless used in business)
Driver License (100%)	Driver License (100%)
Individual Income Tax (100%)	Individual Income Tax (100%)
Sales Tax (Estimate on basis of Iowa Tax Study Committee Report, unless better basis can be found)	Sales Tax (Estimate on basis of Iowa Tax Study Committee Report, unless better basis can be found)
Federal Excises (See Mushkin, Nat. Tax Jour. for factor. Allocate on per capita basis)	Federal Excises (See Mushkin, Nat. Tax Jour. for factor. Allocate on per capita basis)
State Liquor and tobacco taxes (Allocate on per capita basis)	State Liquor and tobacco taxes (Allocate on per capita basis)
Social Security Tax (Omit)	Social Security Tax (Omit)

Comparisons with incomes:

In re Businesses - compare business operating net income with total taxes paid)

In re Personal - compare personal income from whatever source with total taxes paid)

Chart 1. Formula for tax allocation suggested by Professor Schmidt, University of Nebraska.

SUMMARY AND CONCLUSIONS

The primary objective of this tax study was to develop methodology for estimating the impact of taxes on farm operators. Methods were tested by estimating the impact of property, sales and income taxes on farm operators in one area of Kansas. In the analysis, an attempt was made to (1) separate business from non-business taxes, (2) point out the need of a well defined universe when estimating tax impact, and (3) estimate per capita taxes in the areas studied.

Tax impact estimation may be made by various methods. One method would be a budgetary analysis. Another method would be to take aggregate tax figures and apportion them to various groups. The methods developed in this thesis for estimating property, sales, and income tax are those of an empirical nature. One of the major problems in developing this methodology was to define the universe.

The property tax study was in Type-of-Farming Area 6a. All farm operator tax estimates are for the calendar year 1958. Marion County was selected as being representative of Area 6a. A sample of farm operators and their property tax levies were obtained. With the exception of Marion County, Census of Agriculture figures were projected to determine the number of farm operators and acreage size of farms in Area 6a. Because of variation between counties in median real estate property tax assessment ratios and mill levies, Marion County tax levies were adjusted before being used to estimate the impact of the property tax on farm operators in other counties.

The real estate and personal property tax per acre in Marion County was $2 for owner-operators, $1.24 for part owner-operators, and $.39 for tenant-operators. After making the adjustments in mill levy and assessed value, the high-low tax per acre operated for any county in Area 6a was $2.15-$1.28 for

owner-operators, $1.33-$.79 for part owner-operators and $.42-$.25 for tenants. These acre tax figures are exclusive of taxes on grain, dogs, money and credit.

Eighty-nine percent of the property tax levy on farm operators fell on business property and 11 percent on non-business property. Tax impact estimates on farm operators in Type-of-Farming Area 6a accounted for 39.3 percent of the tax on "farm lands and improvements" as reported by the Property Valuation Department. Per capita data are given in Table 24.

The sales tax study was on Central Kansas (Type-of-Farming Areas 6a, 6b, 7,8, and 9) and was made by use of Farm Management Association records and Association Home records. Estimates were made of the percentage of each expenditure class that was taxable.

On the basis of gross farm income, the sample was divided into four groups of equal size. The sales tax falling on the lowest gross farm income classification ($8,778 - $14,715) was used to estimate the impact of sales tax on farm operators in Central Kansas. In this classification, 33 percent of the total owner and part owner business expenditure and 80 percent of the non-business expenditure was subject to the sales tax; 34 percent of tenant business expenditure and 80 percent of non-business expenditure was subject to sales tax.

The average sales tax falling on owners and part owners in Central Kansas was $109.25. The average sales tax falling on tenants was $125.98. Using these averages, the total sales tax paid by farm operators in Central Kansas was larger than sales taxes paid by the farm population as determined by Bird's "county method." This condition may be due to (1) overestimation of the percentage of farm operator expenditure taxable, (2) the methodology suggested by Bird may not result in a good estimate of the average sales tax paid by members of the farm population, and (3) the farm population may be underestimated.

In the lowest gross income classification, 56.8 percent of the sales tax fell on business expenditures and 43.2 percent on non-business expenditures for owners and part owners. For tenants, 56.5 percent of the sales tax fell on business expenditures and 43.5 percent fell on non-business expenditures. Per capita data are given in Table 24.

The records used in the sales tax study were also used in the income tax study to estimate farm operator income tax. The same gross farm income classification was considered representative of farm operators in Central Kansas.

The average State income tax falling on owners and part owners was $20.12; the average Federal income tax was $268.94. For tenants, the average State income tax was $18.33 and the average Federal income tax was $251.67. Both State and Federal income taxes were non-business taxes. Per capita data are given in Table 24.

Table 24. Per capita tax; property, sales and income, 1958.[1]

Type of tax	Type of farming area studied	Farm operators: Average of all farm operators	Owner	Part owner	Tenant	Other population
Property tax	6a	$88.67	$96.83	$134.14	$29.26	$113.79
Sales tax	6a,6b,7,8 and 9	28.74	27.31	27.31	31.50	24.88
Income tax:	6a,6b,7,8 and 9					
Federal		65.76	67.24	67.24	62.92	179.00[2]
State		4.88	5.03	5.03	4.58	10.75[2]
Totals		70.64	72.27	72.27	67.50	189.75
Totals of all taxes		188.05	196.41	233.72	128.26	328.42

[1] Property tax computed from the Marion County sample; sales tax and income tax computed from Farm Management Association records.

[2] State-wide 1958 fiscal year Federal income tax and 1958 calendar year State income tax with farm operator tax payments and population included.

A sample of State income tax returns provided little tax information, other than State and Federal income tax payments. The sample was State income tax returns with a "Schedule of Farm Income and Expenses" attached. Average per capita Federal income tax was $52.25. Per capita State income tax was $6.77. "Schedule S" of the "Individual Income Tax Return" lists various taxes as a personal deduction if the standard deduction is not used. Infrequent entries were made in "Schedule S" as most returns used a standard deduction.

Refinement of methods and additional testing is needed. Some of the factors requiring additional attention are (1) larger sample size in the areas already studied, (2) similar studies in other areas, and (3) statistical tests for degree of significance between tax estimates in the various areas studied.

Methodology suggested in this study for estimating tax impact could be used for a state-wide estimate. However, before doing so, the tax levy adjustment procedure used in the property tax estimate should be further studied. The representativeness of the real estate median assessment ratio used in this adjustment process is questionable. Questionaires mailed to local tax officials offer advantages over methods used in this thesis.

In the sales tax impact estimation, further study is needed on (1) the percentage of each expenditure class that is subject to sales tax, and (2) selection of a gross farm income classification most representative of farm operators. The second suggestion is also applicable to the income tax study.

Many tax records and tax data are now maintained and reported on a fiscal year basis. For this reason, a subsequent study should consider collecting data on a fiscal year basis. Tax collections vary from year to year depending upon the amount of expenditures, net income, mill levy, and assessed value of property. Tax estimates on a one year basis can only be indicative of tax conditions which existed in that year.

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APPENDIX

Table 25. Property tax for farm owner-operators in Marion County, 1958 (Averages for sample size 30).

Real estate					
Total assessment	$ 7,674.33			Total tax levy	$312.03
Land assessment	6,491.00	Percent of total assessment	84.6	Tax levy on land	263.10
Improvements assessment	1,183.33	Percent of total assessment	15.4	Tax levy on improvements	48.93
House assessment	604.50	Percent of improvement assessment	51.1	Tax levy on house	25.00
Other buildings	578.83	Percent of improvement assessment	48.9	Tax levy on other buildings	23.93
Personal property[1]					
Total assessment	$ 2,990.00			Total tax levy	$113.67
Furniture & appliances	312.67	Percent of personal property assessment	10.4	Tax levy on furniture & appliances	11.00
Car assessment	381.67	Percent of personal property assessment	12.8	Tax levy on car	15.60
Other personal property assessment	2,295.66	Percent of personal property assessment	76.8	Tax levy on other personal property	87.07
Real estate and personal property[1]					
Total assessment	10,664.33			Total tax levy	$425.70
Tax levy on grain, dogs, money and credit					
Grain	$1.03	Dogs	$.87	Money & credit	$.30
				Total tax levy	$427.90[2]

[1] Exclusing grain, dogs, money and credit.

[2] Including grain, dogs, money and credit.

Table 26. Property tax data for farm part owner-operators in Marion County, 1958 (Averages for sample size 24).

Real Estate					
Total assessment	$7161.86			Total tax levy	$284.96
Land assessment	5758.14	Percent of total assessment	80.4	Tax levy on land	229.11
Improvements assessment	1403.72	Percent of total assessment	19.6	Tax levy on improvements	55.85
House assessment	700.00	Percent of improvement assessment	49.9	Tax levy on house	27.87
Other buildings assessment	703.72	Percent of improvement assessment	50.1	Tax levy on other buildings	27.98
Personal property [1]					
Total assessment	3850.00			Total tax levy	145.46
Furniture & appliance assessment	248.96	Percent of personal property assessment	6.5	Tax levy on furniture & appliances	9.42
Car assessment	391.88	Percent of personal property assessment	10.2	Tax levy on car	14.54
Other personal property assessment	3209.16	Percent of personal property assessment	83.3	Tax levy on other personal property	121.50
Real estate and personal property [1]					
Total assessment	11011.86			Total tax levy	430.42
Tax levy on grain, dogs, money and credit					
Grain	1.79	Dogs	1.17	Money & credit	1.88
Total tax levy $435.26 [2]					

[1] Excluding grain, dogs, money and credit.

[2] Including grain, dogs, money and credit.

Table 27. Property tax data for farm tenant-operators in Marion County, 1958 (Averages for sample size 40).

Personal property[1]					
Total assessment	$2,528.50			Total tax levy	$91.90
Furniture & appliances	228.62	Percent of personal property assessment	9.0	Tax levy on furniture & appliances	8.27
Car assessment	250.12	Percent of personal property assessment	9.9	Tax levy on car	9.10
Other personal property assessment	2,049.76	Percent of personal property assessment	81.1	Tax levy on other personal property	74.53
Tax levy on grain, dogs, money and credit					
Grain	$1.35	Dogs	$ .80	Money and credit	$ 2.22
		Total tax levy	$96.27[2]		

[1] Excluding grain, dogs, money and credit.

[2] Including grain, dogs, money and credit.

Table 28. Marion County "Statement of Valuations and Taxes Charged Thereon, for 1958 by Classes."

LOCALLY ASSESSED PROPERTIES	(1) Valuations as Shown By Tax Rolls — Dollars	Per Cent	(2) General Property and Intangible Tax — Dollars	Cents	Per Cent	(3) Special Tax and Per Capita Dog Tax — Dollars	Cents	Per Cent	(4) Total Tax All Purposes — Dollars	Cents	Per Cent
REAL ESTATE											
1. Farm Lands and Improvements	22 455 820	41.50	905	560 32	41.90				905	560 32	41.41
2. Mineral Reserves	22 630	.04	927	17	.04				927	17	.04
3. Platted tracts outside cities (Village Lots) and Improvements	39 555	.08	1	611 43	.08				1	611 43	.07
4. Unplatted tracts (Metes and Bounds) in cities and Improvements											
5. City Lots and Improvements	5 072 995	9.37	319	683 73	14.79	23 252 43		90.56	342	936 16	15.68
PERSONAL PROPERTY											
6. Tangible, inside cities	2 426 350	4.48	151	071 26	6.99	Dog 667	00	2.60	151	738 26	6.94
7. Tangible, outside cities	10 975 430	20.28	430	471 00	19.92	Dog 1 758	00	5.84	442	229 00	19.77
8. Intangible, inside cities	4 169 470	7.71	20	849 37	.96	XXXXX XXXXX XXX			20	849 37	.96
9. Intangible, outside cities	1 409 456	2.60	7	045 28	.33	XXXXX XXXXX XXX			7	045 28	.32
STATE ASSESSED PROPERTIES (Public Service Corporations doing inter-state or inter-county business)											
10. Real and tangible personal property, inside cities	909 510	1.68	55	477 40	2.87				55	477 40	2.54
11. Real and tangible personal property, outside cities	6 580 784	12.16	268	171 24	12.41				268	171 24	12.26
12. Intangible personal property, inside cities	XXXXX XXXXX XXXXX 54 063	.10		270 28	.01					270 28	.01
13. Intangible personal property, outside cities	XXXXX XXXXX XXXXX										
14. Total Tangible Property	48 483 074	89.59	2 132	973 55	98.70	25 677 43		100.00	2 158	650 98	98.71
15. Total Intangible Property	5 632 989	10.41	28	164 93	1.30				28	164 93	1.29
16. Totals as shown by Schedules 2 and 16 (Form 12 Special)	54 116 063	100	2 161	138 48	100	25 677 43		100	2 186	815 91	100
Grain Tax									3	673 16	
Grand Total all Tax									2 190	489 07	

Table 29. Property tax data on farm operators in Type-of-Farming Area 6a, by counties in 1958.

Tenure by county	Number of operators	Average property tax: Real estate	Personal	Total	1958 Average acreage	Average tax per acre operated	Total tax levy for each type operator[1]	Additional levy on grain, dogs, credit and money	Total tax levy each type operator[2]
Clay:									
Owner	344	$299.24	$109.00	$408.24	243	$1.68	$140,435	$ 757	$ 141,192
Part owner	412	284.34	145.18	429.52	413	1.04	176,962	1994	178,956
Tenant	406		118.47	118.47	359	.33	48,099	1775	49,873
						Sub-totals	365,496	4525	370,021
Cloud:									
Owner	317	338.83	123.42	462.25	215	2.15	146,533	697	147,230
Part owner	435	431.43	220.27	651.70	490	1.33	283,490	2105	285,595
Tenant	371		152.88	152.88	364	.42	56,718	1621	58,339
						Sub-totals	486,741	4423	491,164
Dickinson:									
Owner	570	297.52	108.38	405.90	198	2.05	231,363	1254	232,617
Part owner	597	380.86	194.45	575.31	453	1.27	343,460	2889	346,349
Tenant	564		126.80	126.80	317	.40	71,515	2465	73,980
						Sub-totals	646,338	6608	652,946
Marion:									
Owner	488	312.03	113.67	425.70	213	2.00	207,742	1074	208,816
Part owner	694	284.96	145.46	430.42	346	1.24	298,711	3359	302,070
Tenant	695		91.90	91.90	234	.39	63,870	3037	66,907
						Sub-totals	570,323	7470	577,793
Ottawa:									
Owner	276	233.62	85.10	318.72	192	1.66	87,967	607	88,574
Part owner	448	417.98	213.41	631.39	613	1.03	282,863	2168	285,031
Tenant	198		119.36	119.36	373	.32	23,633	865	24,498
						Sub-totals	394,463	3640	398,103
Saline:									
Owner	378	203.60	74.16	277.76	217	1.28	104,993	832	105,825
Part owner	391	358.76	183.18	541.94	686	.79	211,899	1892	213,791
Tenant	375		113.50	113.50	454	.25	42,562	1639	44,201
						Sub-totals	359,454	4363	363,817
Grant Totals:									
	7,959						2,822,815	31,029	2,853,844

1 Does not include tax levy on grain, dogs, money and credit.
2 Includes tax levy on grain, dogs, money and credit.

Table 30. Division of property taxes between business and non-business property, 1958.

Item	Total levy	Business tax levy	Percent	Non-business tax levy	Percent
		Marion County			
Real estate:					
Land	$287,814	$287,814	100	$ 0	0
Improvements	62,208	30,885	49.6	31,323	50.4
Sub-totals	350,022	318,699	91	31,323	9.0
Personal property:					
Furniture and appliances	18,080	0	0	18,080	100
Car	23,721	15,893	67	7,828	33
Other personal property	178,500	178,500	100	0	0
Grain, dogs, money and credit	7,470	0	0	7,470	100
Sub-totals	227,771	194,393	85.3	33,378	14.7
Totals	577,793	513,092	88.8	64,701	11.2
		Type of Farming Area 6a (Marion County included)			
Real estate:					
Land	$1,420,114	$1,420,114	100	0	0
Improvements	311,006	154,570	49.7	156,436	50.3
Sub-totals	1,731,120	1,574,684	91.0	156,436	9.0
Personal property:					
Furniture and appliances	88,190	0	0	88,190	100
Car	116,813	78,265	67	38,548	33
Other personal property	886,692	886,692	100	0	0
Grain, dogs, money and credit	31,029	0	0	31,029	100
Sub-totals	1,112,724	964,957	85.9	157,767	14.1
Totals	2,853,844	2,539,641	89	314,203	11

Table 31. Size of farm operation, size of income, and source of income by tenure and Type-of-Farming Areas, 1958.

Area	Sample size[1]		Average acres in farm operation		Average gross farm income		Average net farm income		Percent gross income from livestock	
	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
6a	10	3	616	567	$23,900	$14,700	$9,401	$2,228	60.0	44.7
6b	22	4	589	400	25,209	30,380	8,371	9,214	44.1	70.2
7	14	3	1,236	664	25,213	17,289	9,856	8,465	63.0	43.5
8	14	2	546	781	18,501	16,739	5,943	3,254	65.3	55.7
9	16	4	920	1,121	24,436	16,593	6,620	3,756	41.0	28.4
Averages[2]			774	709	23,639	19,834	7,964	5,654	52.1	52.6

[1] Sample size was 92 of which 76 were owners and part owners and 16 were tenants.
[2] Weighted average.

Table 32. Size of farm operation, size of income, and source of income by tenure and Gross Farm Income Classification, 1958.

Gross farm income classification	Sample size		Average acres in farm operation		Average gross farm income		Average net farm income		Percent gross income from livestock	
	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
$8,778 to 14,715	17	6	530	579	$12,345	$12,102	$4,081	$2,929	45.7	33.5
14,950 to 19,324	18	5	705	729	17,322	16,521	5,131	3,653	42.3	40.3
19,575 to 28,246	20	3	835	1,060	23,619	22,369	8,544	8,133	51.0	55.2
29,038 to 65,496	21	2	970	519	38,214	47,506	12,984	15,110	58.7	75.3
Averages[2]			774	709	23,639	19,834	7,764	5,654	52.1	52.6

[1] Sample size was 92 of which 76 were owners and part owners and 16 were tenants.

[2] Weighted averages.

Table 33. Sales tax data on taxable business expenditures by tenure for Type-of-Farming Areas 6a, 6b, 7, 8 and 9, in 1958.

Area	Expenditure classification											
	Average expenditure		Average expenditure taxable		Average tax liability		Average expenditure		Average expenditure taxable		Average tax liability	
	Owner part owner	Tenant	Owner part owner	Tenant	Owner part owner	Tenant	Owner part owner	Tenant	Owner part owner	Tenant	Owner part owner	Tenant
	Automobile (farm share)						Equipment and machinery repair					
6a	$303	$263	$100	$ 87	$2.29	$1.99	$1122	$1085	$ 898	$ 868	$20.56	$19.88
6b	343	332	113	110	2.59	2.52	1584	1270	1267	1016	29.01	23.27
7	357	277	118	91	2.70	2.08	1296	950	1037	760	23.75	17.40
8	424	403	140	133	3.21	3.05	1018	1200	814	960	18.64	21.98
9	374	281	124	93	2.84	2.13	1737	1691	1390	1353	31.83	30.98
Averages	362	305	120	101	2.75	2.31	1398	1272	1119	1018	25.63	23.31
	Veterinary and livestock						Seed and crop					
6a	914	707	91	71	2.08	1.63	611	919	244	368	5.59	8.43
6b	488	688	49	69	1.12	1.58	1583	683	633	273	14.50	6.25
7	420	226	42	23	.96	.53	1111	662	445	265	10.19	6.07
8	383	420	38	42	.87	.96	533	897	213	359	4.88	8.22
9	363	194	36	20	.82	.46	803	488	321	195	7.35	4.47
Averages	486	448	49	45	1.12	1.03	1011	701	404	280	9.25	6.41
	Telephone and electricity						Repairs on improvements					
6a	212	195	212	195	4.85	4.47	92	40	46	20	1.05	.46
6b	254	162	254	162	5.82	3.71	225	91	113	46	2.59	1.05
7	170	121	170	121	3.89	2.77	249	131	125	65	2.86	1.49
8	177	192	177	192	4.05	4.40	164	102	62	51	1.88	1.17
9	251	147	251	147	5.75	3.37	212	90	106	45	2.43	1.03
Averages	218	160	218	160	4.99	3.66	198	90	99	45	2.27	1.03

Table 33 (Concl.) Sales tax data on taxable business expenditures by tenure for Type-of-Farming Areas 6a, 6b, 7, 8 and 9, in 1958.

Area	Expenditure classification											
	Average expenditure		Average expenditure taxable		Average tax liability		Average expenditure		Average expenditure taxable		Average tax liability	
	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant
	Depreciation on machinery						Depreciation on buildings					
6a	$2104	$2508	$1894	$2257	$43.37	$51.69	$300	$116	$150	$58	$3.44	$1.33
6b	2024	2424	1822	2182	41.72	49.97	302	108	151	54	3.45	1.24
7	2283	1513	2054	1362	47.04	31.19	324	7	162	3	3.70	.07
8	1951	1468	1756	1321	40.21	30.25	251	95	126	48	2.88	1.10
9	3141	1689	2827	1520	64.74	34.81	224	105	112	52	2.57	1.19
Averages	2304	1966	2074	1769	47.49	40.51	280	88	140	44	3.21	1.01
	Farm expense totals											
6a	14499	12472	3635	3924	83.23	89.88						
6b	16838	21166	4402	3912	100.80	89.59						
7	15357	8824	4153	2690	95.09	61.60						
8	12558	13486	3346	3106	76.62	71.13						
9	17816	12837	5167	3425	121.33	78.44						
Averages	15675	14180	4223	3462	96.71	79.27						

Table 34. Sales tax data on taxable business expenditures by tenure for Gross Farm Income Classifications, 1958.

Gross farm income classification	Expenditure classification											
	Average expenditure	Average expenditure taxable		Average tax			Average expenditure	Average expenditure taxable		Average tax		
		Owner & part owner	Tenant	Owner & part owner	Tenant			Owner & part owner	Tenant	Owner & part owner	Tenant	
	Automobile (farm share)						Equipment and machinery repair					
$ 8778-14715	$317	$254	$105	$ 84	$2.40	$1.92	$ 963	$1092	$ 770	$ 874	$17.63	$20.01
14950-19324	335	337	110	111	2.52	2.54	1232	1671	985	1336	22.56	30.59
19575-28246	394	339	130	112	2.98	2.56	1294	759	1035	607	23.70	13.90
29038-65496	391	328	129	108	2.95	2.47	1993	1584	1594	1267	36.50	29.01
Averages	362	305	120	101	2.75	2.31	1398	1272	1119	1018	25.63	23.31
	Veterinary and livestock						Seed and crop					
8,778-14,715	262	320	26	32	.60	.73	632	495	253	198	5.79	4.53
14,950-19,324	315	464	32	46	.73	1.05	721	663	288	265	6.60	6.07
19,575-28,246	233	608	23	61	.53	1.40	744	973	298	388	6.82	8.89
29,038-65,496	1054	549	105	55	2.40	1.26	1820	1012	728	405	16.67	9.27
Averages	486	448	49	45	1.12	1.03	1011	701	404	280	9.25	6.41
	Telephone and electricity						Repairs on improvements					
8,778-14,715	151	121	151	121	3.46	2.77	115	77	57	39	1.31	.89
14,950-19,324	196	182	196	182	4.49	4.17	189	66	95	33	2.18	.76
19,575-28,246	194	211	194	211	4.44	4.83	163	135	82	68	1.88	1.56
29,038-65,496	315	150	315	150	7.21	3.44	306	117	153	58	3.50	1.33
Averages	218	160	218	160	4.99	3.66	198	90	99	45	2.27	1.03

Table 34 (concl.) Sales tax data on taxable business expenditures by tenure for Gross Farm Income Classifications, 1958.

Gross farm income classification	Expenditure classification: Average expenditure: Owner & part owner	Average expenditure: Tenant & part owner	Average expenditure taxable: Owner & part owner	Average expenditure taxable: Tenant & part owner	Average tax: Owner & part owner	Average tax: Tenant & part owner	Average expenditure: Owner & part owner	Average expenditure: Tenant & part owner	Average expenditure taxable: Owner & part owner	Average expenditure taxable: Tenant & part owner	Average tax: Owner & part owner	Average tax: Tenant & part owner
	Depreciation on machinery						Depreciation on buildings					
$ 8,778-14,715	$1459	$1934	$1313	$1741	$30.07	$39.87	$109	$ 65	$ 55	$32	$1.25	$ .73
14,950-19,324	1972	1524	1775	1372	40.65	31.42	209	151	105	76	2.40	1.74
19,575-28,246	2355	1695	2119	1526	58.53	34.95	238	17	119	9	2.72	.21
29,038-65,496	3225	3570	2902	3213	66.46	73.58	519	106	260	53	5.95	1.21
Averages	2304	1966	2074	1769	47.49	40.51	280	88	140	44	3.21	1.01
	Farm expense totals											
8,778-14,715	8265	9172	2730	3121	62.51	71.45						
14,950-19,324	12191	12868	3586	3421	82.13	78.34						
19,575-28,246	15075	14236	4000	2982	91.60	68.30						
29,038-65,496	25230	32396	6186	5309	141.64	121.57						
Averages	15675	14180	4223	3462	96.71	79.27						

Table 35. Sales tax data on taxable non-business expenditures by tenure for Type-of-Farming Areas 6a, 6b, 7, 8, and 9, 1958.

Area	Average expenditure		Average expenditure taxable		Average tax		Average expenditure		Average expenditure taxable		Average tax	
	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant
	Automobile (home share)						Telephone and electricity					
6a	$189	$210	$189	$210	$4.33	$4.81	$103	$120	$103	$120	$2.36	$2.75
6b	207	177	207	177	4.74	4.05	86	40	86	40	1.97	.92
7	212	175	212	175	4.85	4.01	79	107	79	107	1.81	2.45
8	178	134	178	134	4.08	3.07	81	34	81	34	1.85	.78
9	157	87	157	87	3.60	1.99	56	60	56	60	1.28	1.37
Averages	190	155	190	155	4.35	3.55	80	72	80	72	1.83	1.65
	Food purchased						Household operation					
6a	910	1161	910	1161	20.84	26.59	346	256	277	205	6.34	4.69
6b	892	845	892	845	20.43	19.35	265	206	212	165	4.85	3.78
7	890	1172	890	1172	20.38	26.84	259	301	207	241	4.74	5.52
8	750	797	750	797	17.18	18.25	239	238	207	191	4.74	4.37
9	1114	919	1114	919	25.51	21.05	352	132	282	106	6.46	2.43
Averages	915	978	915	978	20.95	22.40	292	219	234	175	5.36	4.01
	Furnishings and equipment						Depreciation on buildings					
6a	432	351	381	316	8.72	7.24	300	0	150	0	3.43	0
6b	468	84	421	75	9.64	1.72	301	0	150	0	3.44	0
7	162	206	146	185	3.34	4.24	324	0	162	0	3.70	0
8	222	24	200	22	4.59	.50	251	0	125	0	2.87	0
9	250	147	225	132	5.15	3.02	224	0	112	0	2.56	0
Averages	314	165	283	148	6.48	3.39	279	0	140	0	3.20	0

Table 35 (concl). Sales tax data on taxable non-business expenditures by tenure for Type-of-Farming Areas 6a, 6b, 7, 8, and 9, 1958.

Area	Average expenditure		Average expenditure taxable		Average tax		Average expenditure		Average expenditure taxable		Average tax	
	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant
	House upkeep and repair						Personal					
6a	$113	$ 57	$ 68	$ 34	$1.56	$ .78	$ 56	$ 75	$ 14	$ 19	$ .32	$ .44
6b	97	4	58	2	1.33	.05	103	110	26	28	.59	.64
7	57	81	34	48	.78	1.10	100	107	25	27	.57	.62
8	50	96	30	58	.69	1.33	167	40	42	10	.96	.23
9	228	40	137	24	3.14	.55	133	46	33	12	.76	.27
Averages	111	49	67	29	1.53	.66	114	78	28	20	.64	.46
	Clothing						Education and recreation					
6a	264	509	238	458	5.45	10.49	155	242	77	121	1.76	2.77
6b	326	327	293	293	6.71	6.70	288	199	144	100	3.30	2.29
7	390	557	350	501	8.01	11.48	337	544	169	272	3.87	6.23
8	382	297	342	268	7.83	6.14	190	158	95	79	2.18	1.81
9	441	428	398	386	9.12	8.85	275	124	138	62	3.16	1.42
Averages	364	426	328	383	7.51	8.77	259	248	130	124	2.98	2.84
	Medical care						Gifts					
6a	253	262	101	105	2.31	2.40	90	120	68	90	1.56	2.06
6b	307	590	123	236	2.82	5.40	227	68	208	50	4.76	1.14
7	386	252	154	100	3.53	2.29	192	89	144	67	3.30	1.53
8	278	329	111	132	2.54	3.02	152	74	114	55	2.61	1.26
9	383	391	153	156	3.50	3.57	152	54	114	41	2.61	.94
Averages	325	383	130	153	2.98	3.50	187	79	140	59	3.21	1.35
	Total family living expense											
6a	3230	3438	2578	2839	58.98	65.02						
6b	3587	2664	2820	2011	64.58	46.04						
7	3677	3452	2572	2895	58.88	66.31						
8	2934	2342	2275	1780	52.12	40.76						
9	3805	2442	2919	1985	66.85	45.46						
Averages	3482	2861	2665	2296	61.02	52.58						

Table 36. Sales tax data on non-business expenditures for gross farm income classification, by tenure, 1958.

Gross farm income classification	Average expenditure: Owner & part owner	Average expenditure: Tenant	Average expenditure taxable: Owner & part owner	Average expenditure taxable: Tenant	Average tax: Owner & part owner	Average tax: Tenant	Average expenditure: Owner & part owner	Average expenditure: Tenant	Average expenditure taxable: Owner & part owner	Average expenditure taxable: Tenant	Average tax: Owner & part owner	Average tax: Tenant
	Automobile expenses (home share)						Telephone and electricity					
$8,778 to 14,715	$190	$172	$190	$172	$4.35	$3.94	$80	$84	$80	$84	$1.83	$1.92
14,950 to 19,324	223	97	223	97	5.11	2.22	75	47	75	47	1.72	1.08
19,575 to 28,246	158	152	158	152	3.62	3.48	68	117	68	117	1.56	2.68
29,038 to 65,496	192	256	192	256	4.40	5.86	95	30	95	30	2.18	.69
Averages	190	155	190	155	4.35	3.55	80	72	80	72	1.83	1.65
	Food purchased						Household operation					
$8,778 to 14,715	614	995	614	995	14.06	22.79	227	241	181	193	4.14	4.42
14,950 to 19,324	1033	874	1033	874	23.66	20.01	304	185	243	148	5.56	3.39
19,575 to 28,246	967	1251	967	1251	22.14	28.65	391	215	313	172	7.17	3.94
29,038 to 65,496	1007	777	1007	777	23.06	17.79	240	244	192	195	4.40	4.47
Averages	915	978	915	978	20.95	22.40	292	219	234	175	5.36	4.01

Table 36 (con't). Sales tax data on non-business expenditures for gross farm income classification, by tenure, 1958.

Gross farm income classification	Average expenditure		Average expenditure taxable		Average tax		Average expenditure		Average expenditure taxable		Average tax	
	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant
	Furnishings and equipment						Depreciation on buildings					
$8,778 to 14,715	$272	$164	$245	$147	$5.61	$3.37	$108	0	$ 54	0	$1.25	0
14,950 to 19,324	309	111	278	100	6.37	2.29	209	0	104	0	2.39	0
19,575 to 28,246	277	276	250	248	5.72	5.68	237	0	118	0	2.71	0
29,038 to 65,496	389	139	351	125	8.04	2.86	519	0	259	0	5.94	0
Averages	314	165	283	148	6.48	3.39	279	0	140	0	3.20	0
	House upkeep and repair						Personal					
$8,778 to 14,715	58	34	35	21	.80	.48	75	59	19	15	.44	.34
14,950 to 19,324	112	68	67	41	1.53	.94	116	47	29	12	.66	.27
19,575 to 28,246	184	74	110	44	2.52	1.01	159	118	40	29	.92	.66
29,038 to 65,496	83	5	50	3	1.14	.07	102	155	26	39	.60	.89
Averages	111	49	67	29	1.53	.66	114	78	28	20	.64	.46

Table 36 (con't). Sales tax data on non-business expenditures for gross farm income classification, by tenure, 1958.

Gross farm income classification	Average expenditure		Average expenditure taxable		Average tax		Average expenditure		Average expenditure taxable		Average tax	
	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant
	Clothing						Education and Recreation					
$8,778 to 14,715	$227	$427	$204	$384	$4.67	$ 8.79	$199	$357	$100	$178	$2.29	$4.08
14,950 to 19,324	340	385	306	346	7.01	7.93	219	175	110	88	2.52	2.02
19,575 to 28,246	421	574	370	516	8.70	11.81	249	214	124	107	2.84	2.45
29,038 to 65,496	439	302	395	272	9.05	6.22	351	156	175	78	4.01	1.79
Averages	364	426	328	383	7.51	8.77	259	248	130	124	2.98	2.84
	Medical care						Gifts					
$8,778 to 14,715	252	301	101	120	2.31	2.75	290	96	217	72	4.97	1.65
14,950 to 19,324	338	480	135	192	3.09	4.40	124	47	93	35	2.13	.80
19,575 to 28,246	414	233	166	93	3.80	2.13	204	84	153	63	3.50	1.44
29,038 to 65,496	287	609	115	244	2.63	5.59	142	101	107	76	2.45	1.74
Averages	325	383	130	153	2.98	3.50	187	79	140	59	3.21	1.35

Table 36 (concl). Sales tax data on non-business expenditures for gross farm income classification, by tenure, 1958.

Gross farm income classification	Average expenditure		Average expenditure taxable		Average tax		Average expenditure		Average expenditure taxable		Average tax	
	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant	Owner part owner	& Tenant
	Average total family living expense											
$8,778 to 14,715	$2569	$2982	$2040	$2381	$46.74	$54.53						
14,950 to 19,324	3361	2525	2696	1980	61.75	45.35						
19,575 to 28,246	3704	3251	2837	2793	65.20	63.93						
29,038 to 65,496	4114	2752	2964	2095	67.90	47.97						
Averages	3482	2861	2665	2296	61.02	52.58						

Table 37. Business and non-business sales tax by tenure - for gross farm income classification $8,778 - $14,715, 1958.

Expenditure classification	Average expenditure		Average expenditure taxable		Sales Tax					
					Total		Allocation			
							Business		Non-business	
	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
Automobile	$507	$426	$295	$256	$6.75	$5.86	$2.40	$1.92	$4.35	$3.94
Telephone & electricity	231	205	231	205	5.29	4.69	3.46	2.77	1.83	1.92
Equipment & machinery	963	1092	770	874	17.63	20.01	17.63	20.01	0	0
Veterinary & livestock	262	320	26	32	.60	.73	.60	.73	0	0
Seed and crop	632	495	253	198	5.79	4.53	5.79	4.53	0	0
Repairs & improvements	115	77	57	39	1.31	.89	1.31	.89	0	0
House upkeep & repair	58	34	35	21	.80	.48	0	0	.80	.48
Depreciation on machinery	1459	1934	1313	1741	30.07	39.87	30.07	39.87	0	0
Depreciation on buildings	217	65	109	32	2.50	.73	1.25	.73	1.25	0
Food	614	995	614	995	14.06	22.79	0	0	14.06	22.79
Household operation	227	241	181	193	4.14	4.42	0	0	4.14	4.42

Table 37 (concl). Business and non-business sales tax by tenure - for gross farm income classification $8,778 - $14,715, 1958.

Expenditure classification	Average expenditure		Average expenditure taxable		Sales Tax					
					Total		Allocation			
							Business		Non-business	
	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner & part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
Furnishings and equipment	$272	$164	$245	$147	$5.61	$3.37	$0	$0	$5.61	$3.37
Personal	75	59	19	15	.44	.34	0	0	.44	.34
Clothing	227	427	204	384	4.67	8.79	0	0	4.67	8.79
Education and recreation	199	357	100	178	2.29	4.08	0	0	2.29	4.08
Medical care	252	301	101	120	2.31	2.75	0	0	2.31	2.75
Gifts	290	96	217	72	4.97	1.65	0	0	4.97	1.65
Totals	6658	7322	4805	5523	109.25	125.98	62.51	71.45	46.74	54.53

Table 38. Average Federal and State income taxes per farm operator by tenure - by type of farming area and gross farm income classification, 1958.

Area	Sample size[1]		Federal income tax		State income tax	
	Owner and part owner	Tenant	Owner and part owner	Tenant	Owner and part owner	Tenant
			Type of farming area			
6a	10	3	$452.80	$169.67	$42.00	$16.67
6b	22	4	487.59	122.25	32.82	6.75
7	14	3	651.79	366.67	75.79	36.67
8	14	2	340.14	182.50	30.71	20.00
9	16	4	395.38	297.25	28.88	23.75
Averages[2]			466.68	228.25	40.72	20.12
			Gross farm income classification			
Gross farm income $8,778 to 14,715	17	6	268.94	251.67	20.12	18.33
14,950 to 19,324	18	5	354.78	109.80	30.22	15.00
19,575 to 28,246	20	3	521.65	416.67	50.25	45.00
29,038 to 65,496	21	2	670.33	171.50	57.33	1.00[3]
Averages[2]			466.68	228.25	40.72	20.12

[1] Sample size was 92 of which 76 were owners and part owners and 16 were tenants.

[2] Weighted averages.

[3] One tenant paid $343 Federal income tax and $2 State income tax. The other tenant did not pay State or Federal income tax.

Table 39. Average Federal and State income tax per farm operator family member of type of farming area and gross farm income classification, 1958.

Area	Sample size[1]		Average family size		Federal income tax		State income tax	
	Owner & part-owner	Tenant	Owner & part-owner	Tenant	Owner & part-owner	Tenant	Owner & part-owner	Tenant
			Type of farming area					
6a	10	3	4.6	4.33	$ 98.43	$39.15	$ 9.13	$3.85
6b	22	4	3.77	4.75	129.24	25.74	8.70	1.42
7	14	3	3.36	4.00	194.15	91.67	22.57	9.17
8	14	2	3.93	3.5	86.58	52.14	7.82	5.71
9	16	4	3.94	4.5	100.41	66.06	7.33	5.28
Averages[2]			3.87	4.31	120.64	52.93	10.53	4.67
			Gross farm income classification					
Gross farm income $8,778 to 14,715	17	6	3.00	3.33	89.65	75.50	6.71	5.50
14,950 to 19,324	18	5	4.00	5.00	88.69	21.96	7.56	3.00
19,575 to 28,246	20	3	4.25	5.00	122.74	83.33	11.82	9.00
29,038 to 65,496	21	2	4.10	4.5	163.69	38.11[3]	14.00	.22[3]
Averages[2]			3.87	4.31	120.64	52.93	10.53	4.67

[1] Sample size was 92 of which 76 were owners and part owners and 16 were tenants.

[2] Weighted average.

[3] One tenant paid $343 Federal income tax and $2 State income tax. The other tenant did not pay any State or Federal income tax.

Table 40. Income tax data from anonymous Kansas State income tax returns, 1958 (Sample size 152)[1]

Area	Average family size	Average federal income tax per Tax return	Average federal income tax per Family member	Average state income tax per Tax return	Average state income tax per Family member	Average gross profits on "Schedule of farm returns & expenses"	Average adjusted gross income per return	Average net farm profit per return	Average % net farm profit is of adjusted gross income
6a	2.62	$292	$111.45	$21	$7.96	$ 6,770	$3,487	$2,130	61.1
6b	2.94	140	47.79	24	8.10	8,049	3,748	2,596	69.3
7	2.21	168	75.71	12	5.35	5,592	2,445	1,432	58.6
8	2.53	80	31.68	16	6.23	6,912	2,724	2,195	80.6
9	2.65	62	62.35	17	6.26	10,371	1,941	1,129	58.2
Averages[2]	2.59	135	52.25	18	6.77	7,404	2,868	1,966	68.5

[1] Sample includes 21 returns from Area 6a, 31 returns from Area 6b, 28 returns from Area 7, 49 returns from Area 8, and 23 returns from Area 9.

[2] Weighted averages.

A STUDY OF METHODOLOGY FOR ESTIMATING THE IMPACT OF TAXES ON KANSAS FARM OPERATORS

by

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The primary objective of this tax study was to develop methodology for estimating the impact of taxes on farm operators. Methods were tested by estimating the impact of property, sales and income taxes on farm operators in one area of Kansas. In the analysis, an attempt was made to (1) separate business from non-business taxes, (2) point out the need of a well defined universe when estimating tax impact, and (3) estimate per capita taxes in the areas studied.

Tax impact estimation may be made by various methods. One method would be a budgetary analysis. Another method would be to take aggregate tax figures and apportion them to various groups. The methods developed in this thesis for estimating property, sales, and income tax are those of an empirical nature. One of the major problems in developing this methodology was to define the universe.

The property tax study was in Type-of-Farming Area 6a. All farm operator tax estimates are for the calendar year 1958. Marion County was selected as being representative of Area 6a. A sample of farm operators and their property tax levies were obtained. With the exception of Marion County, Census of Agriculture figures were projected to determine the number of farm operators and acreage size of farms in Area 6a. Because of variation between counties in median real estate property tax assessment and ratios and mill levies, Marion County tax levies were adjusted before being used to estimate the impact of the property tax on farm operators in other counties.

The real estate and personal property tax per acre in Marion County was $2 for owner-operators, $1.24 for part owner-operators, and $0.39 for tenant-operators. After making the adjustments in mill levy and assessed value, the high-low tax per acre operated for any county in Area 6a was $2.15-$1.28 for owner-operators, $1.33-$0.79 for part owner-operators and $0.42-$0.25

for tenants. These acre tax figures are exclusive of taxes on grain, dogs, money and credit.

Eighty-nine percent of the property tax levy on farm operators fell on business property and 11 percent on non-business property. Tax impact estimates on farm operators in Type-of-Farming Area 6a accounted for 39.3 percent of the tax on "farm lands and improvements" as reported by the Property Valuation Department. Per capita data are given in Table 1.

The sales tax study was on Central Kansas (Type-of-Farming Areas 6a, 6b, 7, 8, and 9) and was made by use of Farm Management Association records and Association Home records. Estimates were made of the percentage of each expenditure class that was taxable.

On the basis of gross farm income, the sample was divided into four groups of equal size. The sales tax falling on the lowest gross farm income classification ($8,778 - $14,715) was used to estimate the impact of sales tax on farm operators in Central Kansas. In this classification, 33 percent of the total owner and part owner business expenditure and 80 percent of the non-business expenditure was subject to the sales tax; 34 percent of tenant business expenditure and 80 percent of non-business expenditure was subject to sales tax.

The average sales tax falling on owners and part owners in Central Kansas was $109.25. The average sales tax falling on tenants was $125.98. Using these averages, the total sales tax paid by farm operators in Central Kansas was larger than sales taxes paid by the farm population as determined by Bird's "county method." This condition may be due to (1) overestimation of the percentage of farm operator expenditure taxable, (2) the methodology suggested by Bird may not result in a good estimate of the average sales tax

paid by members of the farm population, and (3) the farm population may be underestimated.

In the lowest gross income classification, 56.8 percent of the sales tax fell on business expenditures and 43.2 percent on non-business expenditures for owners and part owners. For tenants, 56.5 percent of the sales tax fell on business expenditures and 43.5 percent fell on non-business expenditures. Per capita data are given in Table 1.

The records used in the sales tax study were also used in the income tax study to estimate farm operator income tax. The same gross farm income classification was considered representative of farm operators in Central Kansas.

The average State income tax falling on owners and part owners was $20.13; the average Federal income tax was $268.94. For tenants, the average State income tax was $18.33 and the average Federal income tax was $251.67. Both State and Federal income taxes were non-business taxes. Per capita data are given in Table 1.

Table 1. Per capita tax; property, sales and income, 1958.[1]

Type of tax	Type of farming area studied	Farm Operators: Average for all farm operators	Owner	Part owner	Tenant	Other population
Property tax	6a	$88.67	$96.83	$134.14	$29.26	$113.79
Sales tax	6a,6b,7,8 and 9	28.74	27.31	27.31	31.50	24.88
Income tax:	6a,6b,7,8 and 9					
Federal		65.76	67.24	67.24	62.92	179.00[2]
State		4.88	5.03	5.03	4.58	10.75[2]
Totals		70.64	72.27	72.27	67.50	189.75
Totals of all taxes		188.05	196.41	233.72	128.26	328.42

[1] Property tax computed from the Marion County sample; sales tax and income tax computed from Farm Management Association records.

[2] State-wide 1958 fiscal year Federal income tax and 1958 calendar year State income tax with farm operator tax payments and population included.

A sample of State income tax returns provided little tax information, other than State and Federal income tax payments. The sample was State income tax returns with a "Schedule of Farm Income and Expenses" attached. Average per capita Federal income tax was $52.25. Per capita State income tax was $6.77. "Schedule S" of the "Individual Income Tax Return" lists various taxes as a personal deduction if the standard deduction is not used. Infrequent entries were made in "Schedule S" as most returns used a standard deduction.

Refinement of methods and additional testing is needed. Some of the factors requiring additional attention are (1) larger sample size in the areas already studied, (2) similar studies in other areas, and (3) statistical tests for degree of significance between tax estimates in the various areas studied.

Methodology suggested in this study for estimating tax impact could be used for a state-wide estimate. However, before doing so, the tax levy adjustment procedure used in the property tax estimate should be further studied. The representativeness of the real estate median assessment ratio used in this adjustment process is questionable. Questionaires mailed to local tax officials offer advantages over methods used in this thesis.

In the sales tax impact estimation, further study is needed on (1) the percentage of each expenditure class that is subject to sales tax, and (2) selection of a gross farm income classification most representative of farm operators. The second suggestion is also applicable to the income tax study.

Many tax records and tax data are now maintained and reported on a fiscal year basis. For this reason, a subsequent study should consider collecting data on a fiscal year basis. Tax collections vary from year to year depending upon the amount of expenditures, net income, mill levy and assessed value of property. Tax estimates on a one year basis can only be indicative of tax conditions which existed in that year.